Medical Lib.

CLINICAL MEDICINE

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If You Stay on the Main High Road

IF you stay on the Main High Road, my son,
You'll win to the goal at last,
But you'll know, as you see the warm sun go,
That the best of Life's things were passed!

ON the winding bypaths thro' vale and dell,
You'll find Song and Flower and Fay
And sweet woodland bower, where for an hour
You may dream at the close of day.

IF you stay on the Straight High Road you'll reach
The end of the trail full soon;
But you'll never have known the rose-scent blown
Or the mysteries of the Moon!

IF you stay on the Hard High Road, my friend,
You may save yourself many a jar,
But, when everything's weighed, the fellow who strayed
Will be richer than you by far!

G. H. C.

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CLINICAL MEDICINE

Dependable Therapeutic Fact for Daily Use

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The Administration of Bacterial Vaccines By Mouth

THE parenteral introduction of foreign proteins, for the purpose of producing a curative reaction in the organism, seems to be established so firmly that it is all but impossible to dislodge it. Occasional attempts to introduce such foreign proteins, especially those of bacterial nature ("antigens") are considered more as curiosities than that they are taken seriously. Repeated attempts have been made to introduce bacterial remedies through the rectum (for instance, the antituberculosis serums of Marmorek and of Maragliano), by percutaneous administration (Moro, Petruschky, Carl Spengler), and by feeding (von Behring, Calmette). In feeding experiments, Calmette probably has been more successful than anybody else. Still, the dictum had been pronounced authoritatively that antigens introduced by mouth are altered by the digestive juices, and that they lose their antigenic properties before being assimilated. Consequently, therapeutic attempts were bound to be in vain. (So it was said!)

It seems that the laboratory experiments upon which this dictum was based will bear repetition and further development. It is hardly possible that so experienced an investigator as Calmette, for instance, could be entirely mistaken. Moreover, it has been shown for other than tubercle-bacillus antigens that they do not lose their immunizing properties by gastric digestion, but that they are quite capable of stimulating the production of specific antibodies.

That seems entirely reasonable for such organisms as the Vibrio choleræ, the typhoid bacillus and the dysentery bacillus, since all these microorganisms are commonly introduced into the body through the digestive tract, and from there pass through the circulation after having passed the lymphatic glands. The circulation, then, carries them to the intestines where they find a *locus minoris resistentiæ* or their peculiar injurious action.

It is of great interest to find that these particular microorganisms not only can do harm if introduced through the intestines in large quantities, but that they also can exert their beneficial effects if administered in the same manner and in proper dosage. In *American Medicine* for July (p. 393), Prof. W. Fornet, of Paris, France, has an extremely instructive discussion of the problem of internal im-

munization with "edovaccines". He advances the thesis that, "for microbiologic preparations. the subcutaneous or intravenous injections do not represent the ideal way of administration, and their internal application ought not to be so entirely neglected as it has been done until now."

Fornet refers to Hida and Toyoda, who were able to demonstrate experimentally that the Vibrio choleræ, the typhoid and dysentery bacilli do not lose anything of their immunizing properties by gastric digestion, and Chosa proved that typhoid bacilli peptically digested for six hours were still able to produce specific antibodies. Fornet also refers to Ferran's beautiful studies, the results of which caused him to recommend, in 1885, the immunization of the whole population menaced by the great cholera epidemic by means of internal vaccination. He advised to sow cholera Vibrios into the drinking water of every town and village in Spain.

This reminds us of von Behring's suggestion (1903) that prophylactic immunization against tuberculosis might be feasible by feeding babies with milk from tuberculous cattle, but in which the number of tubercle bacilli was controlled. It will be remembered that von Behring's suggestion was lampooned and hooted. It was not so wild after all.

Paul Ehrlich immunized white mice against ricin by feeding them cakepills containing small quantities of this toxin. In 1908, K. Wolff protected white mice against dysentery by the internal administration of the corresponding bacilli.

Similar good results with internal immunization have been published by Chvostek for dysentery, Repetto for rabies, Fornario for plague, Breton and Petit for diphtheria and Brueckner for paratyphoid fever.

In man, Shiga successfully employed immunization by mouth against endemic dysentery.

Altogether, experimental and clinical experience seems to have established the fact that there is such a thing as internal vaccination (better, immunization) and that it is possible to immunize man and beast against infectious diseases by administering the related antigens per os. Earlier experiments, the outcome of which prevented the adoption of this method in preference to the parenteral, seem to have been inconclusive inasmuch as the serum of the vaccinated animals did not contain the expected agglutinins. However, this criterion was not well taken, since agglutinins and other immune bodies, which are symptoms of immunity, are not necessary evidences of it and may be absent.

Fornet refers to Besredka's detailed studies of the problem and to his successful work. He showed that the effect of internal immunization depends entirely on the quantity of antigen absorbed by the intestine and that the absorption of the various antigens is subject to very marked differences, according to the nature of the microbe in question. The establishment of an immunizing reaction seemingly depends upon the ability of the infectious virus to produce a toxin that irritates the mucous membrane of the intestine beginning with simple hyperemia and causing progressively further changes, even going as far as necrosis of the mucous membrane. Not every microorganism possesses this ability of irritating the intestine and, therefore, is not absorbed. However, Besredka found that bile is irritating enough to make the intestine permeable and that typhoid bacilli combined with bile constitute an efficient antityphoid vaccine.

Besredka's method of internal immunization has been already successfully tried in several epidemics. Vaillant and Vitoux, e. g., have published very favorable reports on the good results of internal immunization during the epidemic of typhoid fever that occurred in 1920 in Pas-de-Calais. Out of 2,000 inhabitants, 1,236 were vaccinated with Besredka's internal vaccine, 173 with the subcutaneous vaccine T. A. B. of heated typhoid bacilli, and the number of those who avoided vaccination might be reckoned as 600 to 650. None of the persons vaccinated with either of these vaccines got typhoid fever, once the period of incubation passed, whereas among the non-vaccinated there occurred 21 fresh cases of typhoid fever. In 1923, in the military college in LaFleche, Sar., the department had to suffer from a severe epidemic of typhoid fever. After 43 cases had occurred during the first ten days, all the pupils were vaccinated by order of the general health officer, 268 of them internally and 253 subcutaneously. After vaccination, 15 fresh cases of typhoid fever occurred within the period of incubation, two-thirds of them among the subcutaneously vaccinated and only one-third among those pupils who had ingested the typhoid bacilli with bile.

Similar good results have been obtained with internal vaccination during the epidemics of typhoid fever, in the department Aude, by Cassan, and, in Saint Omer, by Darrad.

Nicolle and Conseil have published identical successes with internal immunization against dysentery and against Malta fever.

Regarding the mechanism of this immunization by mouth, Fornet points out that the process is not a localized one, but that it affects the entire organism. Bacterial antigens seem to obey a general biologic law that makes every parasite pass the circulation of the body before it may have a marked influence on the health of the individual. Some years ago, he showed that typhoid bacilli, e. g., when swallowed, do not produce typhoid fever by simple implantation in the ileum, but by passing through the intestinal wall and through the lymphatic glands into the circulation. The same is true for the tubercle bacillus. Its simple contact with the mucous membrane of the intestine does not yet suffice to produce a tuberculous ulceration that results only after Koch's bacillus has passed through the lymphatics and the blood-vessels.

Since the possibility had been established of influencing the body as a whole through internal immunization, the possibility of treating general infectious diseases, as well as intestinal infectious diseases, suggested itself and was developed by Fornet. This investigator started his researches with two infectious diseases that show very marked contrasts—namely, tuberculosis and gonorrhea. In both cases, the germs were exposed to ether vapors. In the case of gonococci, for the purpose of sterilizing them; in the case of tubercle bacilli, for the additional purpose of removing the fatty, waxy, capsule which resists digestion, and, therefore, prevents the absorption of the bacilli through the intestinal wall. This process has been employed for general purposes, years ago, by von Ruck, later by Wassermann, by Crofton and quite recently by Dreyer. However, all these men produced antigens that are introduced into the organism by subcutaneous injection.

After having been acted upon by the ether vapors, the bacilli were mixed with bile and liquorice root and made up into pills, each pill containing one milligram of dried bacilli.

With these "edovaccines," two lots of guinea pigs were fed; three of them got the tubercle bacilli, three others the gonococci. Before, their blood serum had been examined and had shown no agglutinating power whatever towards an emulsion of either of these microbes. The same test was repeated daily and, from the fourth day after immunization on, the serum became agglutinating for tubercle bacilli in those guinea pigs that had received tubercle bacilli and for gonococci in the others. The agglutinating power went up to 1:200 in some animals and reached its greatest height on about the tenth day after immunization. The opsonic index showed a similar curve. When tested with virulent tubercle bacilli, those guinea pigs that had been treated with defatted tubercle bacilli showed a greater resistance against the infection than the others. They died later and their pathologic lesions were less numerous. The author expresses the hope that, by prolonging this treatment, a real antituberculosis immunization will become possible; he considers it likely even that the serum of animals immunized in this way may prove to have some therapeutic value.

In his clinical tests, Fornet found that the pills containing tubercle bacilli or gonococci were easily taken and did not cause any trouble whatever even when ten or more of them were taken together by healthy persons. Three or four days later, the blood serum of these persons began to show a specific agglutinating power against those microbes that had been taken with the pills, whereas the agglutinating test with the other microbes remained negative as before.

Fornet records the impression that the agglutinating power of the blood serum of persons suffering either from tuberculosis or from gonorrhea was much more easily influenced by the corresponding microbes, absorbed together with bile, than that of healthy persons or of those who suffered from another disease.

These changes, observed regularly in the blood of persons fed with specially prepared bacilli, prove that these microbial antigens are not withheld by the intestinal wall and that they take part in the general metabolism of the body. Another fact is still more conclusive and has the advantage of being demonstrated without an analysis of the blood. It is the different effect these internal vaccines have on healthy persons and others. As said before, a healthy individual may take as much as ten pills at one time without noticing the least effect, whether the pills contain tubercle bacilli, gonococci or no microbes at all.

A tuberculous person, however, who were to take only half that dose of the "Edovaccine T. B." would show, four hours later, a very strong local reaction, headache, sweat and high fever. For individuals suffering from tuberculosis, the internal antituberculosis vaccine represents a very strong medicine that

must be very carefully dosed. Fornet, therefore, regularly begins with one single pill only, adds another pill the next day and so slowly increases the dose until a slight reaction, local and general, takes place. If necessary, he repeats this treatment after an interval of six days. The effect has never failed yet and might be compared with the effect of an injection of tuberculin; but the therapeutical influence is much more evident. Tuberculous glands become smaller and, more than once, he saw them disappear altogether within a few days. Pulmonary symptoms become less marked, nocturnal sweats subside, the fever lowers and generally the patients soon gain in weight. There seems to be no doubt whatever that the internal vaccination leads to an antituberculosis immunization and it is more than likely that the "Edovaccine T. B." will prove to be also a powerful prophylactic.

In patients suffering from gonorrhea, even more remarkable effects were noted. Even small doses would produce severe pain, inflammation, headache and fever. For this reason, Fornet commences treatment with one single pill. He gives two on the second day, three on the third day, etc., until a slight local and general reaction is noticed. Then he waits six days and begins again with small, slowly-increasing doses. The effect of this treatment is very favorable clinically and, in addition, it may be employed as a method of diagnosis for the detection of larved gonorrhea.

It may be added that Fornet made similar experiments with all sorts of pathogenic germs and that he always was able to reproduce the well-known effects of specific subcutaneous vaccination by the application of the corresponding internal vaccine prepared in the way described. Internal vaccination thus produces not only a local immunity of the intestine, as has been supposed hitherto, but a general immunity of great effectiveness.

All this is exceedingly interesting and tempts one to repeat Fornet's investigations. The important point is, that a sufficient quantity of the treated bacilli be worked up in pill form. One milligram, be it said, either of tubercle bacilli or of gonococci, is many times more than anybody would dare to administer by hypodermic injection. In all probability, this offers an explanation for the relative failure of earlier investigations.

The clinical advantages of the oral administration of immunizing substances are too self-evident to require discussion. Especially for children where prophylactic immunization often is so exceedingly desirable, the method would be highly advantageous. We are thinking of the prophylactic immunization by mouth against whooping cough, against diphtheria, and against various others of the infectious diseases that afflict children and raise their mortality unduly. Even their various intestinal disturbances might be counteracted satisfactorily in that manner. Altogether, the possibilities opened up by Fornet's work are almost unlimited.

Every one must see daily instances of people who complain from a mere habit of complaining.—Graves.

THE MEDICAL PRACTITIONER: WHY? WHAT? HOW?
Something about Medical Education

Why is the medical practitioner? In compliance with the law of demand and supply, he is there to give to the sick those services and that relief that they require in order to regain their health, if that be possible. When people consult a physician, they want help for their ailments. That's about the long and the short of it.

What is a medical practitioner? In CLINICAL MEDICINE for July, 1923 (page 462), we gave it as our opinion that the physician, the general practitioner, is the result of years of work, of study, of human experience, human suffering. He is not merely the product of the medical college. When he graduates from that, he is only ready, presumably, to become a physician. He may be a doctor of medicine; but, that does not necessarily make him a physician. The physician, we hold, is one who is trained scholastically and practically, and fit temperamentally to treat sick humans, to minister to their ailments of body and soul and to give them that comfort that they stand in need of.

How does a medical practitioner become? Not solely by passing through a course of study in a medical college, which gives only the first beginning for the preparation of the physician. In medical college, the student acquires information. In his early practice and, before, in his hospital internship, he transmutes his information into knowledge, through the addition of experience. In actual practice, then, through information and knowledge plus continued experience and the development of that insight in human needs that the physician requires, he gains wisdom. Fortunate is the patient whose medical attendant has not only information and knowledge but also wisdom.

The question is, whether the graduate in medicine, on leaving the medical college, is properly equipped to enter the apprenticeship of his early years in practice; whether he has a sufficient general information in the fundamental sciences and branches, notably anatomy, physiology (both, normal and pathological), chemistry, then clinical medicine, surgery, midwifery. If he has been grounded well in these, he will be able to give a good account of himself in dealing with the homely, everyday ailments for which he is likely to be consulted, always providing that he is temperamentally fitted to become a physician and that he is able to adapt himself to circumstances and to make wrong circumstances change in the proper direction. In an apprenticeship of several years in general practice, he will then have an opportunity to round out his information and to acquire knowledge. His individual aptitude for special work will develop and, if in time he desires to take up special work, he will have laid a useful foundation which will save him from becoming a one-sided, myopic specialist who can see nothing outside of his own specialty. It is this kind of specialist, the "limited specialist" who has done untold injury to his specialty and also to the whole medical profession.

Quite evidently, the "how?" in the making of a graduate in medicine is of importance. It is here that, quite clearly, the shoe pinches; for, it is in the direction of medical education that loud complaints and protests are voiced.

An editorial in *The Journal A. M. A.* (July 26, page 273) rather criticizes the critics of the prevailing scheme of medical education. The editorial writer charges the complainants with being unreasonable, with having clamored loudly for just the kind of teaching that is being given now and with being dissatisfied with it long before this kind of teaching could have proved its usefulness. Against the demand that practice, research and teaching should be differentiated more sharply, he argues that they can not be so differentiated; he puts off the demand for learning instead of teaching as merely a play of words.

Against this, Dr. W. A. Pusey (l. c., Aug. 9, page 459) objects to "the air of serene confidence that all is well, and of tolerant condescension with which criticisms of the prevailing policy are answered, without going to the trouble to consider seriously the objections themselves". He emphasizes the fact that all is not well in medical education and medical service, asserting that there is no justification for a satisfied attitude when the best solution that can be offered for rural medical service of experience in the general practice of medi- is state medicine. . . . It is a time for serious questioning, Doctor Pusey declares, when repeated findings show that vast areas of the country are becoming . . . "medically helpless" . . . We are riding for a disaster in medical service for a large part of the community, the Doctor concludes, if we follow unheedingly the "straight and modern highway" in medical education that we apparently think we are following now.

The question of medical education is concerned not only with the adequate preparation of medical students for the practice of medicine, but also with the problem of supplying all districts in need of medical service. A point raised by Doctor Pusey has been discussed for years. It is being advanced continually and, although the bromidic assurance, "All's well", is offered us occasionally, there is every indication to show that indeed large portions of the country are rapidly being depopulated, as it were, of physicians. This, we opine, is not so much indicative of an actual deficiency in medical practitioners as rather due to a faulty distribution, some parts of the country, notably the large cities, being crowded with physicians while others do not have sufficient medical service (see CLIN. MED., July, 1923, page 460).

The whole problem has recently been ventilated in what we conceive to be an eminently fair and sensible manner by Dr. Edward H. Ochsner, in his Presidential Address before the Illinois State Medical Society, May 8, 1924 (cf. *Ill. Med. Jour.*, June 1924). Doctor Ochsner offers the self-evident postulate that the purpose of medical education is, to provide for the present and future citizens of the country the best medical care, service, and attention that is possible under the circumstances. He declares that we are not doing this today. And, he continues, we are not likely to do this until we realize the faults in our present system of medical education. He, too, finds the real difficulty to be, a faulty distribution as to location and the prevailing tendency of medical schools to turn out more and more specialists and fewer and fewer general practitioners. Yet, it is the general practitioner upon whom the majority of the sick depend, at least eighty percent of all medical care falling properly in his province.

Every medical student, says Doctor Ochsner, should first of all be given the opportunity to become an efficient general practitioner and then, later, after having had five years or more

of experience in the general practice of medicine, if he shows special fitness and a desire to become a specialist, the postgraduate schools and hospitals should offer the opportunity.

Medical teaching, today, is done largely by specialists who, themselves, lack in the ability to correlate their own branches to the general field of physiology and, therefore, can not guide the students to an adequate perception of relative values. The teaching of "many things" is undeniable, but the "much" that the student should learn is not offered. Especially is he encouraged to neglect the simple, the every-day ailments that make up by far the largest portion of the physician's work, in favor of the unusual, the highly specialized, the speculative. The tendency to rely unduly on the results of laboratory investigation and laboratory diagnosis, leaving out of consideration the clinical study of the patient, has resulted in causing the student and the young graduate to hold themselves aloof and viewing more the disease than the patient, preferring to deal with the abstract rather than with the concrete. It stands to reason that all this results in wrong done to the sick—unwittingly, perhaps, but none the less truly. The personal sympathy, the entering into the individual, subjective complaints, to which the old-time doctor listened to kindly, are wanting. The patients feel, all too often, that they are considered as sort of glorified experiment animals, and that the outstanding aim of the physician is not to help the patient to get well, but rather to study the disease and, perchance, to guide it to a favorable termination; but, without direct reference to the patient who merely happens to be the means to the end.

To come back to Doctor Ochsner's address. He is very doubtful whether the average medical graduate of today ever will be as useful a member of society as is the average medical graduate of the three decades between 1880 and 1910. A generation ago, men entered the medical college after having gained experience in the struggle for existence, where they had acquired balance, judgment and the habits of industry. More stress was laid on the preparation for practical clinical work than for research and mere laboratory study. Besides, the students of that time received more thorough grounding in the fundamentals and were not deluged with details to the extent prevailing today. Incidentally, Doctor Ochsner insists, properly, we believe, that all of the teachers in the fundamental branches should be men who have had extensive experience in the practice of medicine and that the teachers of the clinical and applied branches be men actually engaged in the practice of medicine, *men with a broad outlook upon their profession.* [Italics are ours.—Ed.] "Judgment cannot be learned in schools. It is acquired only in the practical experiences of life. . . . Standardization does not necessarily make for efficiency and progress; it only too often results in a dead level of uniform, uninteresting mediocrity. . . . What the medical graduate needs today is not more knowledge, but more useful, applicable knowledge. . . . What medicine needs is not so much more facts as a proper correlation of the facts already known. . . ." These are a few of Ochsner's pithy remarks. And this:

"What we need . . is a larger number of medical teachers who can and will teach medical students the essentials of medicine in the shortest possible time without cluttering up their minds with a lot of nonessentials, so that we may have a larger and larger percent of graduates ready, willing and able to supply the people with efficient medical service for their common ordinary ills, a service which is quite as important and quite as necessary as any that can be rendered to society".

Without content, we shall find it almost as difficult to please others as ourselves.—Greville.

WHY DO WE GIVE DRUGS?

"Doctor, can't you give me some medicine to cure my headache"—"my dyspepsia"—"my cold", or whatever it may be? The question is put to us often enough and with sufficient insistence to make us think about the relation that drugs and other remedial agents bear in the "cure" of disease. It is difficult to make the laity entertain any other idea but that the physician *cures* their ailments by means of his medicines or of his other methods of treatment.

What is disease, what constitutes treatment, what is the cure of disease? These three points, if made the subject of a discourse, would carry us far, much farther than can be elaborated in the limits of an editorial; yet, it may be well to investigate, at least, in a measure, how diseases are cured and what is the influence of drugs that are prescribed for the purpose.

Among the numerous definitions of "disease", the one may be most acceptable that calls it "any deviation from the normal functionings of the organs of the body." Manifestly, the susceptibility of a disease to relief

will depend upon its causes and upon its severity; it will also depend upon the changes, if any, that it has produced in the tissues. Most diseases are due either to the injurious, irritating action of exogenic influences (bacteria, poisons, chemical injuries) or to perversions of the body chemistry, or to accidents. In accordance with the nature of the causative agent, diseases may be recognized at a stage in which they have given rise only to symptoms on the part of the nervous system and to transitory disabilities. That is to say, various functions of the organ may be impeded or interfered with; but, when the cause is relieved, the effect will be alleviated and removed, likewise. If the disease advances further, for the reason that an existing irritation, or injury, has been severe enough or persistent enough to produce changes in the tissues or in the body fluids, the disease becomes organic; that is to say, there occurs an alteration in the structure of the organs. In so far as these structural alterations are permanent, an absolute cure is not possible, but the outcome in the favorable case will be relative, namely, a restoration to functioning power and to reasonable comfort.

The cure of disease, in the strict meaning of the word, means a restoration to health, a rehabilitation of the physiological processes, it being the becoming pathological of the physiological processes that constitutes disease. As already said, if this pathological character of the physiological processes has advanced to such a degree that structural changes have occurred, it will not be possible to bring about an entire retrogression; there may remain a fibrosis, or an ulcer will heal leaving a scar. In short, from a strictly physiological viewpoint, a restoration to normal cannot be expected.

Fortunately, this is not as important as it might appear theoretically, in view of the fact that entire comfort and a very reasonable degree of good health are possible even with the existence of certain pathological or, at least, abnormal structural changes.

That being the case, we understand, when speaking of the cure of disease, that the expression is relative and not absolute. When pathologically a cure is not possible, we attempt to bring it about clinically and functionally; that is to say, we attempt to restore the patient to such a state of relative health that will enable him to live comfortably, without pain or discomfort, so that he is able to attend to his duties in a fair manner.

As to the means that are at our disposal for curing disease, they are many and they depend more or less upon the causes underlying the disease. It is perhaps natural that the effect of drug treatment should be overestimated by many and that much more is expected from them than can be accomplished. In part, that may be a remnant of ancient times when the priest-physicians administered, to the sick, substances with reputed healing powers which actually were merely symbolic and in the effect of which the incantations pronounced by the priest-physician and his positive assurance of recovery were of far greater effectiveness than the remedies themselves. All down the centuries, the many, even in the medical profession, depended on drugs and other methods rather more, or attributed greater power to them, than was quite justified. And, yet, drugs are actually important means in the restoration of physiological processes if they are selected correctly and employed physiologically.

So ancient an authority as Hippocrates taught that "natural powers are the healers of disease". He treated his patients by regulating their diet, prescribing baths and a change of climate, advising poultices, purgatives, diuretics, and eschewing to an extent remarkable for his age, the ridiculous medicamental mixtures used by his contemporaries.

The actual effect of drugs upon the organism has not been studied so very long. It is true that attempts were made centuries ago. It will be recalled that the "Methodist School", which flourished at the time of Nero, viewed bodily ailments under three heads: the first comprising such as proceed from stricture; the second, those which arise from relaxation; and the third, those which assumed a mixed character. Therefore, the remedies were selected, naturally, so as to relieve the stricture, or overcome the relaxation, accordingly as they had been active in bringing about the disease. In principle, the idea is perfectly correct. Even today, we correct congestion by vasorelaxants, and we resort to vasoconstrictors where we desire to diminish the blood supply. Also we may use "derivants" to drive the blood to the surface or to the extremities —away from the congested area. We may increase or lessen the pressure of the blood flow; in short, today, it is realized that a sound normal circulation has a great deal to do with health, and that, in its turn, it depends upon a normal chemical constitution of the circulating blood.

Modern investigators have accepted the view that the various tissue changes and me-

tabolic processes, called living, or life, depend upon the equilibrium being maintained by the different forces and influences. To each stimulation, the body responds with the formation of suitable antibodies. Each injury is met by a corresponding counter-effort on the part of the organism, that attempts to neutralize the effects of the injury. So, the chemical harm done by the socalled toxic bacteria (diphtheria, tetanus, dysentery, etc.) is counteracted by chemical means, that is, antitoxins which neutralize the bacterial toxins; the mechanical injury produced by other bacteria, such as pneumococcus, typhoid bacillus, etc., is met by the formation of antibodies that destroy and dissolve the offending germs and that neutralize the poisons generated by them. The biochemic processes of the organism are complicated and, yet, essentially simple and follow certain large principles that are observed in most varied processes of resisting disease and of making good its injury.

As a matter of fact, the mode of action of many remedies that have come down to us through the ages is, in the last instance, entirely physiological and is exerted in the direction of restoring physiologic processes. That is true for those remedies that have survived and are still recognized as useful. More recent times have taught us that some of the physiological processes depend upon fermentation and, in accordance with this discovery, the deliberate administering of certain ferments and enzymes is a recognized therapeutic procedure which, it is readily seen, acts in accordance with natural processes; that is to say, it acts physiologically.

This idea is utilized in the specific treatment of bacterial diseases in which the so-called specific immunization, or stimulation, causes the organism to produce those antibodies that it would elaborate normally if its resistance to the bacterial invasion were normal.

In so far as specific antibacterial treatment simulates, or stimulates, physiological processes, it is a physiological method of treatment. The same is true of other methods of treatment; for instance, endocrine substances are required because, for certain reasons, the body is not able to elaborate the secretions of the related endocrine glands in a sufficient amount to maintain the physiological endocrine balance. That is the reason for endocrine dysfunction.

With the boost that the endocrine glands receive through the medication, which is specific, in a way, the lacking substances are supplied, the various physiological processes can be resumed and, at the same time, the endocrine glands of the body have a chance to rest and regain their own functioning ability. When they can assume their normal function, disease is relieved in so far as it depends upon endocrine disability.

All this shows that, normally, the physiological processes, the various tissue changes and manifestations of metabolism are carried on under the influence of a sufficient nutrition of the body, which is supplemented by the food that is ingested. Very naturally, that food must have those chemical substances ("building stones") that are required to replace waste material that had to be discarded and also to rebuild new cells. Life is an everlasting process of generation of new cells and elimination of dead cells. Here the importance of suitable food comes in and it may happen under certain conditions that certain substances, that may be introduced with the food and that are really essential food factors, are administered in the form of drugs, for the reason that the foodstuffs containing them are not acceptable or are temporarily not tolerated, or are difficult to procure, or because of some other reason. Thus, for instance, the nature of vitamines as essential food factors has been fully recognized in the last few years and, in view of the fact that sometimes it is difficult to procure or to eat food articles in which the vitamines have not been destroyed (as they are destroyed in many canned and otherwise preserved foods), the individual vitamines have been administered in an artificial form. The enthusiasm with which, two or three years ago, yeast was prescribed and taken very generally had a good deal of justification, and so has (within definite limits) the raw-food craze, according to which fruits and vegetables should be eaten without preliminary cooking lest the vitamines be destroyed.

It is very true that all the vitamines and, likewise, all substances required by the body can be procured in the form of foodstuffs. However, it is not always feasible to introduce the vitamines in the crude form, and then certain medicaments (yeast tablets, cod-liver oil) may be very serviceable for limited periods of time.

With all this, it is to be recalled that the possibilities and the limitations of any form of drugs are regulated by the degree in which these drugs can stimulate the blood or other tissues of the organism to resume their normal functions and in so far as they restore

the chemical constitution of the blood, especially as regards its various mineral constituents and its enzymes. Therefore, the drug action also is indirect, no matter what its ultimate effect may be. Sedation, stimulation, support, the antitoxic action, the blood-making effect, the digestive action, all of these drug-effects are based upon the restoration of physiological processes, and are observed indirectly as secondary consequences following introduction of these drugs.

Courage makes a man more than himself; for he is then himself plus his valor.—W. R. Alger.

THE CALCIUM METABOLISM

In another Department of this issue of CLINICAL MEDICINE (p. 683) Doctor Achard presents the greatly condensed results of a study of the voluminous literature dealing with the mineral metabolism, more especially that of calcium. More recent publications might make it appear as though calcium deficiency were an outstanding factor in virtually every disease that we are called upon to treat, and that surprising clinical results can be secured by the simple(?) expedient of relieving the deficiency in this essential constituent of the tissues.

As a matter of fact, it is perfectly natural that a deficiency in the content of ionized calcium in the blood serum must give rise to functional disturbances—in view of the fact that the calcium-ion is indeed an essential constituent of the cell and that it enters into the make-up of all organs; that their function is disturbed more or less seriously when the calcium content has become abnormal.

When it is considered further that the movements of the calcium metabolism are more or less definitely under the regulation of endocrine glands, the problem becomes even more absorbing. It may be declared rather sneeringly that the great attention being paid to endocrine variations and irregularities is an indulgence in fads, that their importance is overdrawn and that their practical application is "rankly empirical"; the fact is nevertheless that the most experienced observers and the most successful clinicians are firmly convinced of the great value accruing to the patients and, incidentally, to the theory of medicine from conscientious attention being paid to these various novel studies.

Seemingly, as is intimated by Doctor Achard, the list of diseases in which Doctor Grove found an improvement of calcium deficiency (by means of parathyroid medication) to be followed by either relief or definite cure, recalls the patent-medicine almanac of olden days. Nevertheless, the facts in the case are in nowise forced and follow quite logically. After all, the human organism is very much the same the world over. It invariably consists of a frame-work, of the musculature, of the various organs, brain, lungs, heart, and other viscera, also the organs of the senses, etc. All of these organs have identical construction and composition. Why then should it be nonsense to find corresponding ailments due to corresponding causes and yielding to corresponding measures? It is not the uniformity of affections and of remedies that is astonishing; the astonishing part comes in the cavilling criticism that is raised with such manifest effort to find fault.

We are convinced that a careful study of the mineral metabolism and a conscientious search for means to relieve its irregularities will be followed by an amount of clinical success that often is startling. Obedience to the simplest physiological laws cannot help but prosper the physician in his clinical work.

FOUNDATIONS

It is unfortunate that, today, a large number of busy physicians seem to be under the impression that all they need in the way of intellectual pabulum is material which deals with the therapeutics and management of disease conditions. This attitude would do very well for an automobile mechanic, or a plumber, but hardly sorts with the dignity of our scientific profession. If a physician would keep himself in the traditional position in which he is viewed by the public, it is necessary that he should give a certain amount of attention to keeping himself abreast of scientific advancement along fundamental lines.

Among these basic sciences, biology has frequently been considered to be a rather dry and profitless study, but the article by C. L. Redfield on "Vitalizing Biology" (p. 701) should certainly change the mental attitude of many on this subject, and its perusal is urged upon all who desire to do a little original thinking. Mr. Redfield is an enthusiast and gives evidence of having devoted much time and thought to the subject with which he deals. Being an enthusiast, he quite naturally makes his points with a great deal of force and vigor, and it is suggested that this fact be kept in mind in reading his strictures upon the present theories of immunity and fatigue, so that one may not be led to give up an idea which has seemed for some years to cover the

facts until he is fully satisfied that he has something that will adequately replace it. On the other hand, this should by no means be interpreted as countenancing a hide-bound attitude which is unwilling to consider new propositions or new interpretations of already known facts.

Modern education too often covers the fingers with rings, and at the same time cuts the sinews at the wrist.—Earl of Sterling.

CLINICAL MEDICINE

We are not talking about ourselves or to ourselves but have in mind the larger meaning of the words than the mere title of this journal. Medical men have a comprehensive concept in "clinical medicine" that covers not only preventive and remedial (curative) means but curiously enough surgical measures as well.

In attempting a program to fit the suggestion, we but map out a broad field that invites the best efforts of both editors and readers and almost insures success.

For the encouragement of our readers not located in medical centers, it remains that not all the results of clinical work need be or are locked up in the record sheets of hospitals and dispensaries. Just consider CLINICAL MEDICINE as your journal and write the editors, naming the subjects in which you are especially interested. Located as we are with facilities unexcelled anywhere and both ability and inclination, we can undertake that research work which will bring you either the oldest or latest at no inconvenience to you, and in the least possible time.

In an emergency we shall submit our findings by early mail, reserving for publication those communications which indicate value and interest to the profession at large. Our big endeavor is to encourage, secure and hold that proximity between you and the editors that will make CLINICAL MEDICINE your first thought in trouble. "Any port in a storm," but CLINICAL MEDICINE always, with that confidence of a sympathetic hearing which will give you the best to be had.

Does this appeal to you? Is this platform sufficiently broad enough to win and hold your allegiance?

What have you of puzzling cases in your work of today? What have you of clinical material in recent cases that will benefit you or may help others if studied, developed and published as it can be with our facilities? CLINICAL MEDICINE will gladly devote liberal space to matters of this kind. Only, we must know the subjects that interest you.

We hesitate to suggest what occurs to us when your case book has many subjects of interest to you and even more interest to our readers. Write us a letter of ideas. Is it on problems of skin disease, bone work, internal medicine or pediatrics? Do you want something on applied therapeutics or gynecology or maybe the broader field of preventive medicine?

What about such diseases as syphilis, goiter, pneumonia, psoriasis, the acute exanthemata, or perhaps toxic drug action?

Journals, books and briefs are at hand with physiologic research, laboratory and clinical material available, plus a big, warm desire to be helpful in a way that will have you coming again and again. What are your problems?

"ENDOCRINES VS. SURGERY IN THE TREATMENT OF CANCER"

While it is well recognized that generalizing from limited data frequently leads to serious fallacies, the extreme importance and urgency of the cancer problem, at the present time; seem to warrant the publication of any material on the subject which shows evidence of thoughtful consideration, in order that such limited studies may be compiled and considered in large groups.

Doctor Cummings, in his article which appears on p. 693, seems to have achieved some results which are well worthy of consideration; and, in view of the more or less unsatisfactory outcome of many of the forms of treatment of cancer which are now in use, it seems reasonably certain that the application of his suggestions can lead to no possible harm and may conceivably produce marked benefit.

Although he says nothing regarding the use of radium in the local treatment of the lesion, this should never be overlooked by any man who is handling malignant conditions.

Leading Artieles

The Importance of Mineral Salts in the Human Organism

By H. J. ACHARD, M. D., Glendale, California

THE importance of calcium in the animal economy is just now the subject of numerous investigations and an astonishing number of maladies are attributed to an alleged or actual depletion of the organism with respect to this mineral. This is so marked as to have called forth the expression that "we are in danger of imperiling the lime salts with the same fate that has befallen the endocrine glands; namely, that of becoming the dumping ground for obscure pathological physiology."

It is only to a limited extent, however, that calcium depletion is charged with being the cause of numerous and varied ailments. Moreover, it has been shown by some conservative investigators (for instance, Vines and Grove working together in clinical and laboratory research) that indeed there is a relative calcium deficiency associated with numerous pathological conditions, in most of which there may be discovered a septic focus, the absorption of toxins from which has evidently given rise to an excessive outgo of calcium without a corresponding intake to compensate it.

Endocrinologists have told us that the calcium metabolism is regulated mainly by the parathyroid function, although the thyroid, the ovaries, and perhaps the adrenals, also are concerned in it. The logical inference of substitutive endocrine medication has been practiced with remarkable effect as regards parathyroid substance, and very encouraging results are recorded also from the use of thyroid substance. Furthermore, it has been found possible to bring about marked and lasting clinical improvement by the administration of calcium in a suitable form, and especially in association with other minerals, such as sodium and silicium.

All this is apparently in contradiction to the assertion that the calcium content of the blood is remarkably constant and that it is hardly subject to change through the ingestion of calcium preparations (Ed., *Therap. Gaz.*, 1917). The apparent contradiction of the position outlined by the Editor of *The Therapeutic Gazette* with the present-day views is cleared up by W. R. Grove (*Clin. Jour.*, Oct. 31, 1923, p. 521), who says that: "In what is known as calcium deficiency, the blood after clotting contains some calcium in the combined or non-ionized form, and there is a relative rather than actual deficiency, though actual deficiency is far from uncommon. It is the relative defiency of ionized calcium which is the important point, the inference being that some of the calcium which should be ionized has become combined with some unknown substance formed as some stage in a pathological process."

The Position of Minerals in the Organism

The mineral substances that are introduced into the organism with the food and which enter into the make-up of the tissues have, until recently, been greatly undervalued. Even now, their importance is not sufficiently appreciated by many physicians. Still, recently the problem of demineralization of the organism, insisted upon years ago by French clinicians, is being recognized as highly important and it is especially the essential nature of the calcium metabolism upon which the interest of clinicians and investigators alike has been centered.

According to Albu-Newberg, the mineral constituents of the organism are not to be considered from the same viewpoint as the organic substances, their physiologic characteristics and their modes of action being entirely different. Indeed, the mineral salts occupy a separate position among the "building stones" of the organism. These mineral substances fulfill various functions:

They participate in the formation and growth of all tissues of the organism. Without mineral components, there can be no cell or tissue formation.

They intermediate the osmotic tension in the cells and tissues, in blood and tissue fluids, and are, for that reason, the carriers of energy.

They regulate reaction of blood and tissue fluids, and the course of many fermentative processes, especially in the digestive tract.

They function as carriers of oxygen for the organism, intermediate the changes in the albuminous constituents of the living cellular substance, which are indissolubly connected with their peculiar activities. They regulate the processes of intoxication and detoxication which are constantly going on in the living cells, and here they maintain a balance by virtue of the partial antagonism of their actions. A great part of the metabolic process (especially those in glandular organs) is made possible by the mineral substances. In short, everywhere they participate in the transmutation of food stuffs into tissue elements.

The most important mineral substances, essential components of the human organism, are certain compounds of calcium and sodium, also silicium, all in readily absorbed combination. The other minerals, such as potassium, magnesium, iron, phosphorus, are of somewhat less importance, being required only in the minute amounts which are contained in our available foodstuffs. It is different with regard to the calcium salts of which the normal human body contains about four ounces. Since normally the urine alone eliminates daily from 0.15 to 0.5 Gm. of calcium, an adequate calcium metabolism can be maintained only by a sufficient ingestion of lime salts with the food.*

Our modern diet is so excessively refined, and so seriously deprived of root and leafy vegetables that it no longer contains the required quantities of lime, not to speak of other minerals and of vitamines. Moreover, the increased consumption of meat stuffs, of sugar and other sweets, all of which involve a greater expenditure of lime in their transmutation, cause considerable portions of this mineral to be deviated from its main function.

Evils of Lime-Deficiency

Long ago, Voorhoeve declared that lime occupies a dominant position in the physiology and pathology of metabolism. It has long since been realized that the old-time view, according to which the lime contained in the human and animal body was concerned solely in the formation of bones and teeth, was erroneous. Professor Loew showed, almost thirty years ago, that each cell nucleus contains a quantity of lime and that the cell dies as soon as this lime is used up or is precipitated out of its combination.

The body may be compared with a state composed of cells; it consists of innumerable cells each of which contains lime which it requires. If this lime portion is used up without being replaced, various manifestations of disease follow. According to the organ in which a certain deficiency in lime has taken place, a corresponding function is weakened or destroyed.

The soft tissues are injured functionally if they suffer even a slight loss of lime. Fortunately, a suitable and timely supply of lime may restore the normal function of the affected organs.

A disproportion between nutrition and assimilation, associated with a deficiency in lime, and the resulting acidosis are contributing factors in metabolic disturbances of all sorts. They are concerned in rheumatic affections, in gout, sciatica, many renal disturbances, and in numerous conditions that seemingly have only remote connection with metabolism. As W. R. Grove (*Clin. Jour.*, 1923, No. 44, p. 521) points out, calcium deficiency often is a consequence of toxin absorption from septic foci; hence in varicose ulcers, hemorrhoids, etc. At any rate, it is reasonable to say that metabolic faults of all kinds suggest *a disproportion* between food intake and the proper digestion and assimilation. Almost all these maladies are consequences of calcium deficiency and of the acidosis produced by it. Acidosis (acid intoxication) is closely associated with a diminution in the blood alkalinity. In consequence, the urine is acid, and this again leads to an increased elimination of lime and also of ammonia.

The essential nature of lime has been proved recently by H. Horst Meyer and his pupils. The phenomena are explained thus that, since lime is present in the nucleus of each cell in a vital combination, the removal of the lime from this combination is followed by destruction of the nucleus and therefore by the death of the cell. In consequence, even in partial lime deprivation of the cells, of which the nucleus naturally is a vital con-

*Grove (*Clin. Jour.*, Oct. 31, 1923, p. 521): "In the serum of the blood there is normally about 10.7 mgm. of calcium per 100 Cc. before clotting; roughly, 6.7 mg. of this is in the ionic state, and 4.0 in a combined or non-ionized condition. After clotting, the whole of the 10.7 mgm. should be in the ionized form. In what is known as calcium deficiency, the blood after clotting contains some calcium in the combined or non-ionized form, and there is a relative rather than actual deficiency, though actual deficiency is far from uncommon. It is the relative deficiency (of ionized calcium) which is the important point, the inference being that some of the calcium which should be ionized has become combined with some unknown substance formed at some stage in a pathological process."

A useful method for determining the blood-calcium was described by Hans Leicher in the *Deutches Archiv. fur klinische Medizin* (CXLI No. 1 and 2, 1922, p. 87).

stituent, these can no longer function normally, the organs are weakened thereby and acquire, among other things, a predisposition to various infectious diseases. Those organs, in which the calciprivia appears first, become ill before the others; other organs may be affected in turn because of a calcium deficiency, and thus an explanation is afforded why disease phenomena may appear simultaneously or in quick succession, which seemingly are quite different. Such things are observed especially in children who have become rachitic through calciprivia or who are suffering with skin affections.

Of all muscles, the heart contains most of lime. Postmortem investigations of persons who had died of heart failure showed always that the heart muscle was greatly deficient in lime. Its normal content in this mineral evidently had been used up without being replaced in good time. Hence the catastrophe. Contrariwise, postmortem examinations of healthy persons who had succumbed to an accident showed that the heart muscle contained a normal quantity of lime.

The calcium requirements are especially great in pregnant women, largely on account of the growing fetus. A medium-sized fetus weighing from 3000-3200 Grams contains from 40 to 43 Grams of lime. Since the ossification of the skeleton takes place principally in the last four months of pregnancy, the mother is obliged to procure for each day of this period 0.33 Gm. of lime for the fetus. For her own metabolism, the mother needs 1 Gm. of lime daily. Now, if her daily ration consists of 250 Gm. meat, 500 Gm. potatoes or rice, or 350 Gm. white bread, with 50 Gm. butter, and if, in addition, she drinks two quarts of water containing 0.1 Gm. of lime (the water being taken as such, or in the form of soup, coffee, tea, etc.)—the calcium content of this ratio is only 0.55 Gm. a day. In such a contingency, both mother and child would suffer from lime deficiency. The natural consequence is that the quantities of lime, that are required for the bony frame of the growing fetus, are abstracted from the body of the mother; the results are observed in decaying teeth, nervousness and other phenomena of illness. However, if the daily food allowance of this woman consists of 250 Gm. meat, 500 Gm. spinach, red cabbage, or other leaf or root vegetables, also 500 Gm. rye bread, then the intake of lime would amount to 1.75 Gm. a day, which would be sufficient. As already stated, it is an undeniable fact that our modern fare is too greatly deficient in lime and that, in consequence, it has become necessary to balance the lack by the administration of suitable preparations of calcium.

According to Lorand, calciprivia of the body and osteomalacia resulting from it are in close relation to mental diseases. Weber stated years ago that, out of fifteen pelves with osteomalacia which are in the pathological museum in Prague, six came from former patients in insane asylums. Wagner-Juaregg observed, in 1890, that mental disturbances are particularly frequent during pregnancy and after labor, in regions where there is much osteomalacia.

Geographic Illustrations

It is an old observation in medical practice that the population, in districts where soil and water contain much lime, is much healthier than the population in regions where there is less lime in soil and in drinking water. Instances of this are readily available.

For instance: Forbach, situated at the foot of the Vosges, has a sandstone soil, the whole region being poor in lime. The consequences are manifest in the state of health in people and animals. Pregnant women frequently have softening of bones so that they must walk on crutches. The children are rachitic and often can not walk; even at the age of three and four years, their legs are bent. The cattle suffer greatly, fractured bones being very frequent in cows with calf. Horse-breeding is quite impossible; the young pigs do not run around but mostly lie still.

Only a little over five kilometers from Forbach, there are four villages (Gaubibingen, Thetingen, Teutlingen and Spichern) in a region where there is much lime. The difference that presents itself to the observers is astonishing. The people are vigorous and healthy, and the animals do not show evidences of feeble bones with their unfavorable consequences.

The counterpart of this is found in the results of examinations made of about 3000 children from two to seven years of age and living in Gary, Indiana. The soil around Gary is poor in lime, as is also the drinking water. Examinations showed that 87.1 percent of the two-year old children and 87.7 percent of the eight-year old children had bad teeth; 69 percent of the children examined showed affections of nose and throat, also swollen glands, enlarged or affected tonsils. More than one-third of the children had deficient vision. Poor development of muscles, round shoulders, hunchback, protruding shoulder blades, bow-legs, bony defects of rachitic origin, anemia,

are prevalent and altogether too frequent.

Glandular affections, including goiter, are found almost only in regions with calciprivic soil and water. The drinking water of the city of Chicago is deficient in lime, which explains the frequency of goiter in that city. Owing to the insufficient quantities of lime in the human body, for which the modern refined foodstuffs and the calciprivic drinking water are responsible, the cells of the glands do not contain enough calcium, leading to degeneration of the gland structure, especially in young persons. If the requisite mineral substances, more especially lime salts and silicium salts, are supplied sufficiently early, an improvement in the physical condition will become manifest promptly.

According to Loew and Emmerich, an adequate supply of lime salts will restore the disturbed conductivity of the nerves. The Swiss physician, Reinhardt (*Muench. Med. Woch.*, 1913, No. 26 and 48) reports that those of his patients in whom he employed this very simple remedy, were astonished at the prompt results. It has been observed that high blood pressure, due to arteriosclerosis, may be restored to normal by the introduction of lime. In rickets, also osteomalacia, deficiency in lime is always a factor which yields to appropriate medication.

The Endocrine Factor

We are greately interested in the association of endocrine deficiency with calcium depletion. It appears that the main regulator of calcium metabolism is the parathyroid function. If this is deficient, the blood calcium does diminish and in consequence the resistance of the organism to harm of various kinds, for instance, bacterial infection, is lowered. The localization of bacteria and the development of septic foci and processes causes a further demineralization and an additional weakening of the corresponding endocrine function with a consequent deterioration of the blood and a weakening of the organism. All this creates as serious a vicious circle as can possibly be found. The breaking of the circle necessitates, of course, the restoration of the parathyroid function, then the increased supply, assimilation and fixation in the blood of calcium salts, after which the toxin absorption can cease and the numerous sequels of the septic intoxication may be corrected.

Harrower (*Clin. Med.*, Dec. 1923, p. 876) asserts that it is one of the functions of the parathyroids to fix the calcium in the blood and to steady the blood calcium. If, therefore, a calcium deficiency in the blood is shown to exist, the inference is that the parathyroids are functionally deficient.

The relation betwen endocrine function and mineral metabolism is referred to also by Sajous, Bandler and many other students of the subject.

Hans Leicher (*Deut. Arch. für klin. Med.*, Vol. 141, Nos. 1 and 2, 1922, p. 87) found that the administration of thyroidin is often followed by a diminution of the calcium titer in the blood serum. This, he adds, is striking, because ordinarily the calcium titer can hardly be influenced, the blood holding its calcium content very closely.

In three typical cases of Basedow's disease, a diminished serum calcium titer was found.

Iodine does not influence the calcium content of the serum in healthy persons.

In infantile myxedema, the calcium titer in the serum is increased.

In nine persons with goiter, without symptoms of hyperthyroidism, three showed a normal calcium titer. In three, it was moderately increased, and in three it was diminished.

After subcutaneous injection of hypophysin or pituitrin, the calcium titer of the serum was lowered in five out of six cases. In two cases of hypophyseal dystrophia adiposogenitalis (a hypofunction), the calcium titer in the serum was increased.

Subcutaneous injection of suprarenin caused the calcium titer of the serum to be lowered in nine out of ten cases.

If the parathyroids do not function enough, the calcium titer is lowered; if they function excessively, the calcium titer is probably raised.

Although Leicher did not succeed in showing any constant influence of the gonads upon the calcium metabolism, and although he found the calcium titer to be normal in seven pregnant women in the tenth month, while it was diminished in three, he says that changes in the calcium content of the blood occurred easily in pathological cases during pregnancy, and that they are mostly in the direction of a diminution. This is confirmed by clinical observation in which troubles associated with diminution of the serum calcium, such as tetany, hyperthyroidism, otosclerosis, are almost always aggravated by pregnancy and even may develop during pregnancy.

Leicher's findings are of interest in so far as they clearly establish the relation between disturbed endocrine function and disturbed calcium metabolism.

Therapeutics of Calcium

At first sight, it seems illogical to administer

preparations containing mainly calcium to elderly people whose principal trouble is hardened arteries, that is, lime deposits in the arteries. Yet, such a treatment is greatly to be commended. In arteriosclerosis, the calcium deposits in the vessel walls must be considered as a defensive reaction against the increased blood pressure. A hypertonia of the blood vessels may occur in consequence of severe mental strain and psychic irritation. The dangerous part is not the calcification but the affection that gave rise to the protective calcification. In cases where calcium deposits have not taken place, the vessels often are more friable and may not be able to withstand an increase in the blood flow or in the blood tension. By supplying lime in suitable form to the organism, an abnormally high blood pressure is reduced to normal. Hardened blood vessels have often lost their rigidity after such treatment.

It has been observed that patients with hay fever and with other nasal affections giving rise to copious secretion are greatly improved by the administration of from 45 to 65 grains of calcium lactate, which reduced the secretion materially.*

The administration of calcium salts invigorates the composition of the blood and increases its coagulability. For this reason, calcium medication is indicated in women with severe menstrual flow and in anemic girls.

Convalescence from infectious diseases, such as influenza, pneumonia, typhoid fever, is greatly promoted by the administration of calcium preparations and the effect of the latter is enhanced by certain endocrine substances.

Physicians handling tuberculosis have long since become convinced that calciprivia of the tissues predisposes to lung diseases, and that tuberculous foci can heal only through the instrumentality of calcium. It has been found that the addition of silicic acid (SiO_2) to the calcium is an extremely valuable one, because this promotes the connective-tissue formation and therefore the healing process in the affected lung, rendering the cicatrix harder and tougher.

It has been noted that the tuberculous organism assimilates larger quantities of silicic acid and of calcium than the normal organism. This is because more is required on account of the demineralization that has taken place. The quantities needed are so considerable that they cannot be supplied solely with the food, but must be supplemented with artificial calcium preparations.

It may be remembered that, years ago, John F. Russell, of New York, was very insistent in his advocacy of the idea that tuberculosis was largely due to, or associated with "lime starvation", an idea in which he was in accord with the French teachings of demineralization. In 1906 and the following years, Russell contributed a number of articles on this subject to medical literature, most of which may be found in the *Medical Record*. His main resort in combating the lime starvation was by a carefully supervised treatment in which close attention was paid to the education of the patients to their clothing, exercise, enjoyment of fresh air, attention to special symptoms, such as cough, pain, night sweats, etc., and especially to their diet, digestion, assimilation and elimination; in short, to their nutrition. The food was determined with a view to providing not only the regulation carbohydrates, proteins, fats, etc., but also, the minerals, notably the phosphate of lime. Thus:

"The main sources of phosphate of lime are milk and eggs; of protein, milk, eggs, bread, and meat; of fat, milk, eggs, and emulsion. Excepting wheat and corn meal (as bread) no directions are given for eating cereals. If patients are fond of bread, butter, and milk, they invariably do well, but if they do not eat bread and butter from choice, as commonly happens, they are directed to eat one or more generous slices of bread liberally spread with butter, with each meal. The pulses, peas, and beans are recommended in the form of soups, but are practically ignored as sources of protein, though very rich in this constituent. Ordinarily no special instructions are given in regard to the consumption of meat.

"Practically, then, specific directions for the consumption of a daily amount are confined to the following foods: Milk, eggs, bread, butter, and fat emulsion. With the exception of milk and fat emulsion, the amounts of which remain fixed after a certain period, the daily quantities of these foods are determined by the gain or loss of weight of each individual. It will be understood, therefore, how necessary it is that patients should be weighed regularly."—*Medical Record*, Mar. 22, 1913.

It may be added that Dr. Russell was able to report very satisfactory results from his method of treating tuberculous patients.

Martin (*Clin. Med.*, Nov., 1923, p. 800) points out that, in the indications for "Steinach", the cardiac and vascular system, the skin and hair and the potency occupy the foreground. Now, the carbonized brine-bath, especially the natural ones and especially, also, the thermae, likewise those Bad-Nauheim

*Novak and Hollender (*Jour. Am. Med. Assn.*, Dec. 15, 1923, p. 2003) find that calcium lactate alone when given orally, does not influence calcium deficiency, but if thyroid or parathyroid substances are added to it, the results are highly satisfactory. Calcium lactate, 5 grains, thyroid extract, ¼ grain, at first three times daily, and later reduced to twice or even once a day, gave immediate relief within from forty-eight to seventy-two hours.

(those containing calcium chloride and magnesium chloride) exert a favorable influence upon the function of the arteriosclerotic heart and vessels.

These natural springs only in part depend upon the carbonic acid contained in them, their good effects being due in great part upon the mixture of salts that they carry. These salts are calcium sulphate, calcium chloride, magnesium chloride, etc. For instance, the springs containing calcium chloride are most effective for treating heart patients, especially those with arteriosclerosis.

Martin believes that the improved blood supply of the liver depends upon the saline content, especially that in calcium chloride. He also assumes that the process of rejuvenation experienced by many patients at the natural springs depends upon calcium chloride.

The enormous importance of calcium chloride is well illustrated in some observations on animals as described by Martin. Some of the natural waters employed for drinking cures (e. g. Sodenthal and Suderode) are evaporated by heat and the sodium chloride is removed, leaving a brown liquid which is called mother-lye. The calcium chloride remains in the mother-lye. The mother-lye of Nauheim and that of Kreuznach are famous for their beneficial effects upon the organism.

During the war, the fodder for the cattle became more and more sparse in Germany and attempts were made to find substitutes. Emmerich and Loew found that guinea pigs fed with calcium chloride not only had more litters, but that with each litter more young animals were produced than in the control animals. This observation proved the influence of calcium chloride upon the sexual function.

Professor Krämer, now in Giessen, working in the agricultural college in Hohenheim, fed twelve cows with Sodenthaler Spring salt. Of the twelve cows, eleven bore calves, although it had been several years since they had done so. The records of the Bad-Nauheim Badedirektion und Saline contain the following letter from Professor Krämer:

"For years, I had much trouble with the cows in the barn. The animals did not conceive and sometimes had to be served six or eight, or even ten times. Then, on April 8, of last year, I commenced adding Sodenthaler Badesalz to their food, putting it up in boxes. The animals were permitted to lick the salt as much as they pleased but, apparently, did not do so very much. For several months previously, the supply of food had been rather scant. Hay, chopped straw and grass (the latter being very slight) constituted the sole feed. Bran was given only in very small quantities and was soon exhausted. We are situated at an elevation of 400 meters, open to the north and east, because of which the entire Filder Plain is very unfriendly. For this reason, considering that it was at the beginning of the pasturing period and that the weather had been continuously damp, the unwholesome appearance of the cows caused us to anticipate considerable losses. However, these failed to take place. To our surprise, on the contrary, the animals acquired smooth and glossy coats, such as I had never before seen them. Three cows, which I had bought in July in the Allgaü and which looked about as rough as wind and weather can bring it about only in the Alps, made a better appearance after only a few days. A few weeks later, even those who had smiled at my purchase couldn't understand it. The transformation was simply incredible.

"My older cows also continued to look better and the smooth, glossy hair was especially striking. The weight also was favorable and the animals looked well nourished.

"I was particularly curious regarding the question of pregnancy. For the first time, in my experience, all these animals, with one exception, became pregnant. They all calved in spring, seeing that they conceived in July and August.

"On a large estate, in Gross Zimmern, despite the scant feeding during the war, the supply of calcium chloride caused a larger production of milk, per cow, by 1.1 liter. The animals lost their rough hair, they looked smooth and glossy and were in good flesh."

Since it has been found, contrary to earlier opinion, that calcium may be administered with success by mouth and by means of injection, it is only necessary to find those preparations of calcium that are most suitable for the purpose. We have found a combination of calcium, sodium and silicium salts to be very excellent, its continued ingestion by mouth being followed by decided clinical improvement. According to John Aulde (*J. A. M. A.*, July 4, 1923, p. 67) the chloride of calcium is unsuitable because it increases the production of hydrochloric acid in the stomach. He prefers the carbonate providing that it is submitted to thorough trituration, but he attributes the greatest merit to the colloid preparation of calcium.

Very pleasing reports are available from the benefits derived from calcium lactate medication in calciprivic conditions. For instance, Luckhardt and Goldberg (*J. A. M. A.*, Jan. 13, 1923, p. 79) suggest the use of calcium lactate in idiopathic epilepsy in doses approaching those found necessary to prevent tetany in parathyroidectomized animals. This dosage is much higher than that found in the U. S. Pharmacopeia. The clinical employment of calcium preparations is manifestly indicated in all those conditions re-

ferred to earlier in this paper and in which calcium deficiency is an important factor. So we employ calcium in all states of denutrition and undernutrition, in hay-fever and asthma, in arteriosclerosis; in short, wherever calciprivia is a factor. As is suggested in the first paragraph of this paper, the number of pathologic conditions in which calcium is found to be indicated is very great.

In view of the fact that the calcium metabolism is presided over by several of the endocrine glands, the substitutive as well as the homostimulative action of the corresponding glandular substances have been invoked with astonishing success. The results that are recorded, especially by Grove and by Vines, also observations by Novak and Hollender (*J. A. M. A.*, Dec. 15, 1923, p. 2003) and by many others might be referred to only hesitatingly, if they did not come from such unimpeachable sources. Individual observations and those of physicians of our personal acquaintance in whom we have implicit confidence have convinced us that the administration of parathyroid substance, for instance, is not only theoretically well considered and justified, but practically successful beyond expectations. In our own experience, we have made it a rule to administer parathyroid substance in association with suitable calcium preparations. The reason is that, in those patients in whom we prescribe such combinations, the calcium metabolism has suffered severely and sometimes for long periods. We were not very certain that even the most carefully considered treatment would be able to restore the power of assimilation very promptly so that the requisite amounts of calcium and of other minerals could be abstracted from the food. As is the case in all drug treatment: it is a temporary expedient that is resorted to until the organism is placed in a position to carry out all of its functions without any exterior help. Hence, we considered the temporary utilization of calcium justified just as much as that of the indicated endocrine substances or, under other conditions, of arsenic, of digitalis, of strychnine and of other remedial agents.

Adjuvant Treatment

It goes without saying that, in calcium deficiency, as in other conditions, the diagnosed irregularity of body function should never be considered exclusively, forgetful of associated deficiencies, irregularities, etc., that may be intimately connected with the dominant affection. Seeing that the blood picture is found to be deficient in most clinical affections, it is proper to take means to remedy that. Tonic treatment, for instance, by combinations of iron, arsenic, with quinine, with strychnine, as the case may be, always is of service. Attention to personal hygiene, to diet, care that not only the proper food is eaten, but that it is utilized to the best possible extent, and that elimination proceeds satisfactorily, adequate periods of rest alternating with suitable occupation or exercise—all these things form part of the management of the case and should never be neglected. The wise physician never will forget that his patient does not suffer in any one particular organ but that, with even a localized disease, the entire organism is affected and that a great many different functions may require solicitous attention and care.

Some Newer Developments

In the Non-Operative Treatment of Cancer*

(A Preliminary Report)

By EDWARD H. OCHSNER, B. S., M. D., F. A. C. S., Chicago

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EVERY physician who has had a large and varied experience with cancer is quite apt to have some rather definite notions about this disease.

I believe that cancer is a microbic disease. I have no new evidence to present in support of this statement but, the larger my experience becomes, the more do I see a similarity in the clinical manifestations of cancer and certain definitely known microbic affections. Thus, I believe that cancer, like so many microbic diseases, manifests itself in three quite different ways.

1.—Local.

2.—Metastatic.

3.—Systemic.

As a general rule, cancer begins as a local disease with or without regional-lymphatic-gland involvement, just as an ordinary pus infection usually does, and such a local cancer

*Paper read before Chicago Medical Society, February 20, 1924.

growth may rightfully be compared to a boil in an ordinary staphylococcus infection. The metastatic cancer nodule may be fairly compared to a pyemic abscess and the generalized terminal cancerous condition may be compared to the septicemia of a septic infection.

Treatment

As long as the cancer is still local and if the growth is accessible to the knife, surgery should be resorted to as soon as a diagnosis is made, as this procedure gives by far the largest percentage of permanent cures. I think, every general surgeon of large experience can prove by his case records that considerably over 50 percent of all cases operated upon during this stage of the disease have been permanently relieved. This is far more than can be said of any other form of treatment so far used. Further along in this paper, I shall suggest a remedy which, I think, should now be used following every operation for cancer, in which case, I believe, the operative results in this type of cancer would be still better than they are at the present time.

When the disease has progressed to the point of metastatic growth or has become a generalized carcinosis, surgery, in my opinion, is hopeless and the disease has to be attacked in an entirely different way if there is to be any likelihood of successfully combating it.

Just as I believe that practically every chemical poison has a chemical antidote, so I have believed for a long time that there is a specific for every microbic disease. In fact, as long ago as 1917, I read a paper before the Tri-State District Medical Society, at its Dubuque meeting, entitled "A Specific for Every Pathogenic Infection, the Ultimate Goal of Surgery". At that time, I found that, of the approximately 30 common microbic diseases, more than half can be successfully controlled by the use of one or more specifics. By a specific, or specifics, as used in this article, I mean a remedy or remedies which (1) if used alone or combined in suitable doses and for a sufficient length of time, will actually cure at least 50 percent of the cases for which it or they are specific; (2) which has a selective action for the diseased tissues or the invading microorganism or both; (3) which does not damage normal tissues; and (4) the toxic effect of which is in part at least neutralized by the disease.

Take syphilis, for instance: The three specifics for syphilis—potassium iodide, mercury and arsenic, when combined and used in proper dosage and for a sufficient length of time, will cure far in excess of 50 percent of all cases of syphilis. They have a selective action upon the diseased tissues and the invading microorganism and they do not affect normal tissues. Potassium iodide will dissolve and cause the absorption of gummas. Mercury will relieve inflammatory processes in tissue, and mercury and arsenic combined will unquestionably destroy the spirochetes. In addition, it is well known to every syphilographer that the disease to a certain extent neutralizes all three of these remedies. Thus, a patient with syphilis will tolerate these drugs in much larger quantities than will a patient not suffering from this disease.

Take malaria for which quinine is a specific. If properly employed, quinine will cure almost every case of malaria and, while here there are no marked tissue changes, ordinarily, the quinine will destroy the plasmodium malariæ in the blood and, in turn, the plasmodium malariæ will have a neutralizing effect upon the quinine, because a malaria patient will tolerate much larger doses of quinine than will a normal individual. Quinine does not injure normal tissues.

A Specific For Cancer

With the idea in mind of ultimately discovering a specific for every known microbic disease, I have been searching for a specific for cancer for over twenty years and, while I am not absolutely positive as yet that I have actually found a true specific, my investigations have, I believe, progressed far enough to justify this preliminary report. While I have tried out a very considerable number of remedies in inoperable, hopeless cases of cancer during these twenty years, it could serve no useful purpose at this time to refer to those remedies which were entirely ineffective or where the action upon the progress of the disease was only very slight; in fact, such a recital would be much more apt to confuse than to inform. Consequently, I will confine myself to some case reports with one remedy from the use of which I have seen marked improvement in a number of cases and which, I believe, has resulted in complete cure of at least two inoperable cases of carcinoma.

The following four histories are given in the order in which the patients appeared for treatment. In the first case, treatment was started on May 17, 1921. The last case is still under treatment. These four cases are selected from over forty cases treated with this remedy, to illustrate the effect of the remedy upon different types of carcinoma.

Case 1. Mr. E. H. Age 46. Farmer. Admitted to hospital, May 15, 1921, from whose history I take the following essential points: Since last fall, has had several attacks of stomach trouble. At first, two or three weeks apart. Pain in pit of stomach, usually to three or four hours after eating. Relieved by vomiting about one-half hour after onset. Attacks have been more frequent and more severe. Past three weeks, has been distressed almost continually. Patient says that vomitus today looked like coffee. Never has seen fresh blood. Kept awake by pain for one or two hours at night. Weight 181 lbs. Usual weight 190 lbs. Exploratory laparotomy following day. Appendix down over pelvic brim, adherent, distal end congested. Removed. Gall-bladder normal. A tumor, the size of a fist, on lesser curvature of stomach extending almost to cardia. No pyloric obstruction. Abdominal wound closed.

Patient given 1/1000 grain colloidal gold one hour before each meal, beginning two days after the operation and continued more or less continually for a year and a half. Began to improve almost immediately and, on August 21, about three months after the operation, I received a letter from his family physician, Dr. Gustave E. Eck, Lake Mills, Wisconsin, from which I quote the following: "You probably remember our friend, Mr. E. H., where you removed the appendix and left an inoperable carcinoma of the stomach alone. About three weeks ago, he was up to see me and looked the picture of health. He had gained twenty pounds and was eating practically everything." On March 7, 1922, received a letter from which I take the following: "He continues to feel well except for occasional pains in the stomach. Looks the picture of health and weighs 212 lbs." On November 2, 1922, "Mr. E. H. was up to see me yesterday and he has been feeling very well with exception at times of pain in the epigastric region." Since then, I have heard from Dr. Eck verbally that the patient seems to continue in perfect health.

Case 2. Mrs. S. J. Age 68. Admitted to Augustana Hospital on May 15, 1922, with carcinoma of the left breast and axilla. Thirty years ago, had abscess of left breast which was incised. Following this, a little lump appeared and disappeared from time to time; but, seven years ago, lump remained permanently and began to increase in size. Four years before admission, patient was seen by my partner, Dr. Albert T. Lundgren, and operation was advised, but patient went to a prominent internist who dissuaded her from having an operation. Upon admission to hospital, general condition of patient fair, tumor of left breast the size of a lemon, firmly adherent to skin, causing considerable pain. Axillary lymph glands considerably enlarged. Operated May 16, with complete left mammectomy, including overlying skin, pectoralis major and minor and careful dissection of all accessible axillary lymph glands, largest of which were the size of an English walnut. Microscopic examination of primary tumor and axillary lymph glands both show adenocarcinoma.

Patient made a good postoperative recovery, being discharged on May 31, with practically normal use of the arm. Was not seen again until July 11, 1922, when on examination five pea-sized and slightly larger skin-cancer recurrences were noticed in the scar. Weight 127½ lbs. Was given 1/1000 grain colloidal gold per os three times per day before meals. On December 19, 1922, patient weighed 132½ lbs., apparently in perfect general health. Cancer nodules entirely gone. Motion of arm perfect. On May 29, 1923, patient again examined, suffering from severe cold and some cough. Auscultation and percussion of left lung normal. Right lung some dullness anteriorly and lung sounds more faint. Recurrent carcinoma nodules can no longer be found. Later, the dullness in the right lung anteriorly increased and patient died in June, 1923, from carcinoma of the right lung.

Case 3. B. R. Age 66. Referred by Dr. C. W. McPherson of Hazelhurst, Ill., on September 27, 1922. About seven months ago, first noticed a small ulcer on inner surface of right cheek thought to be due to ragged upper tooth. Since then, ulcer has gradually increased in size until now it extends over inside of cheek and most of lower jaw; appearance of a cauliflower. At times, very painful and shows some bleeding. No definite glandular enlargement made out, but there is a fullness in submaxillary region. All lower teeth were extracted three or four years ago. Several ragged stumps in upper jaw. Breath very foul. Operated September 28. A few small lymph glands, submaxillary gland and tip of parotid removed. Tumor excised and then cauterized with hot iron.

October 3, placed on 1/1000 grain colloidal gold three times a day for a period of six months. Wound packed with gauze saturated in colloidal gold solution, 1/1000 grain to 15 minims. 1/1000 grain colloidal gold injected

intravenously three times at intervals of once a week. Under date of January 16, 1923, patient reported to have gained 22 pounds since his operation. One year after operation and six months after stopping the colloidal gold by mouth, received following letter from Dr. McPherson: "The old gentleman whom you operated for carcinoma of the jaw is in the best of health and works every day. For several weeks after he came home, he was feeling bad, but he soon began to round up and is in A No. 1 condition. Really a remarkable case."

Case 4. Mrs. T. H. Age 62. Examined at the office on October 10, 1923, from whose history I take the following pertinent facts. Various children's diseases. Menses at 16, normal; menopause at 48, normal. Married at 26, one normal pregnancy, no miscarriage. About one year ago, having been troubled with constipation, noticed a tag protruding from rectum. After a short time, began to notice watery discharge from rectum, a few times streaked with blood; discharge has been gradually getting worse and causes smarting. About five months ago, began to notice swelling of lower extremeties and, a few weeks later, had considerable trouble with palpitation on slightest exertion. Appetite and sleep fair. Bowels constipated. Weight 113 lbs. On examination, mucous membrane very pale, skin subicteric, markedly cachectic, no cervical adenopathy, skin very dry, heart and lung negative except that pulse beats 132 per minute, regular; heart tones clear. Abdomen markedly distended and tympanitic, no evidence of ascites, slight edema of lower extremeties. An ulcerating carcinoma involving lower two inches of rectum. Advised operation. Patient not seen again until Nov. 8, when she was admitted to the hospital, found weaker and more emaciated and cachectic than on first examination. Blood examination shows the following: HBG 35; RBC 2,250,000, Color Index 0.79; WBC 8,000; Neutrophiles 61; eosinophiles 0.1; transitionals 0.1; small lymphocytes 31, large lymphocytes 6. Mass in rectum extending up about three inches, lumen almost completely obliterated making defecation very difficult.

Nov. 12, patient anesthetized with ether and mass thoroughly cauterized with hot soldering irons, destroying as much of tumor mass as seemed possible.

From Nov. 14 to Nov. 28, patient was given 1/1000 grain colloidal gold per os, four times a day before meals.

From Nov. 16 to Nov. 22, was given gr V Blaud's pills four times a day after meals.

From Nov. 22 to Nov. 28, gr X, Blaud's after meals four times a day.

From Nov. 28 to present date, 1/1000 grain colloidal gold per os, three times a day before meals and Blaud's, gr X t. i. d. after meals.

Dec. 3, rectal and vaginal examination reveals a tumor mass involving complete lumen of bowel for lower three inches and about three inches in diameter, almost completely closing rectum and projecting forward reducing lumen of vagina to about the size of an index finger. Great difficulty in getting bowels to move with enema and cathartics.

From Dec. 3 to Jan. 3, was given, in addition, 1/1000 grain colloidal gold intravenously three times a week.

From Jan. 3 to Feb. 2, colloidal gold intravenously 1/500 grain three times a week.

Jan. 21, rectal-vaginal examination shows tumor has almost completely disappeared. No projecting forward into vagina. Rectum freely admits index finger, with some pain and slight bleeding.

Jan. 24, blood examination: HBG 70, RBC 5,430,000, color index 0.65, WBC 13,500, neutrophiles 56, eosinophiles 1, transitionals 4, small lymph. 35, large lymph. 4.

Jan. 28, weight 98 lbs. February 2, colloidal gold increased to 3/1000 grains intravenously, three times a week. February 8, weight 100 lbs.

Feb. 15, vaginal examination, nothing abnormal discovered. Rectal examination, index finger introduced without difficulty and very little pain. Still some roughness of mucous membrane resembling an induration encircling the rectum and extending upward about an inch. No tumor mass discovered. Rectum empty. Bowels move two or three times a day with mild laxative. Patient's general condition greatly improved. No cachexia evident.

Feb. 16, weight 104¾ lbs.; HBG 75; RBC 4,600,000, color index 0.82; WBC 10,000, neutrophiles 73, transitionals 4, small lymph. 14, large lymph. 4.

Conclusions

I fully realize that the histories presented are none of them conclusive evidence that the remedy recommended by me has yet proven itself to be a true specific in the sense used in this paper.

Case 1: no tumor tissue was removed for examination, but the history and microscopic findings were so conclusive that, in my opinion, there can be no doubt as to the correctness of the diagnosis. Others might, of

course, differ honestly from me on this point.

Case 2: a microscopic diagnosis of the original tumor was made. The recurrent skin cancers were not examined microscopically, but the condition was so evident that, I believe, every surgeon with large experience would have concurred in the diagnosis. In addition, I have had three other similar cases. One still under treatment. One in which the skin cancers were considerably larger and more numerous in which they disappeared in a very short time. The patient's cachexia improved greatly and she expressed herself as much stronger and generally greatly improved.

In the third case, the nodules have also disappeared and the patient is alive and fairly well, after three years.

Case 3 has made a complete recovery and has remained well in spite of the fact that, at the time of the operation, the carcinomatous involvement was so extensive as to make us feel that neither the operative interference nor the cauterization had removed all of the cancerous tissue or could save the patient.

Case 4: the improvement was so remarkable and the progress of the case so dramatic that it was this case that finally convinced me that it was time to publish our experience with this remedy in order that other surgeons might try it out on a larger scale and either prove or disprove its usefulness. The blood changes from HBG .35, RBC 2,250,000 to HBG .70 and RBC 5,430,000, between November 8 and January 24, or seventy-seven days, the almost complete disappearance of the tumor between December 3 and January 21, or a period of forty-nine days, the gain in weight from 100 lbs. on February 8 to 104¼ lbs. on February 15, the marked general improvement, the disappearance of the emaciation and cachexia and general weakness were so remarkable that I am forced to ascribe them to the action of the colloidal gold, particularly its intravenous administration of a sterile solution. I have never seen an inoperable case of carcinoma make such improvement in such a remarkably short time. In addition, it must not be forgotten that practically all of the cases treated by the use of this remedy were hopeless in so far as the heretofore employed remedies for this condition were concerned. In spite of this fact, the nutrition of nearly all of these patients improved; they felt better and stronger and relieved of much of their discomfort, even though most of them did not recover. I believe that our experience with this remedy in case of carcinoma justifies the following conclusions:

1.—That in every case in which the carcinoma is accessible to the knife or to the cautery, the tumor should be removed and that then the patient should be given colloidal gold for a considerable period of time.

2.—That those cases which are inoperable should be given this remedy in suitable doses, both by mouth and intravenously, as I believe it to be the best remedy so far discovered in the treatment of this type of cases.

Finally, I wish to repeat that I am making this preliminary report at this time in order that many physicians may give this remedy a trial in a large number of cases in order to better determine its exact dosage, the best method of administration, its virtue and its limitations.

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The Endocrines vs. Surgery

In the Treatment of Cancer

By W. CLOVIS CUMMINGS, M. D., Oklahoma City, Oklahoma

FOR many years, we have been accustomed to much theorizing regarding the etiology, pathology, symptoms and treatment of cancer. Although we do not yet know the cause of the disease, unquestionably much knowledge has been gained in regard to it; however, despite this progress and many much lauded cures, people keep on dying of cancer in the old-fashioned way and the incidence of the disease is ever increasing. Statistics claim that, among those forty years of age, cancer causes ten deaths out of every hundred. When the great war broke out, its ravages had reached the point of alarm. The war halted the wheels of progress and but little attention could be paid to our calamities at home; since the declaration of peace, however, renewed efforts are being made in every direction to deal with this terrible scourge which is decimating our people.

The Pathogenesis of Cancer

Before we can establish any rational treatment of cancer, we must know its cause.

Investigation has fairly well established that

cancer is neither a parasitical nor a microbic disease, but is rather the result of disordered metabolism. We know that there is always acidosis and a consequent toxemia. Anemia and cachexia are early symptoms and almost invariably present. The red blood corpuscles often sink below 3,000,000, even to 2,000,000, and the hemoglobin may fall below 50 percent. Cancer is further favored by overfeeding and a high protein diet; while those accustomed to a low protein diet are less susceptible to cancer. These facts show that, in some way, cancer is a function of the metabolic condition; and since metabolism is, at least to a great extent, dependent upon normal functioning of the endocrine secretions, especially those of the thyroid and adrenal glands, it is but logical to deduce that cancer is a function of disordered endocrine secretions. The theory of an endocrine origin of cancer is at least as worthy of consideration as any other and there is much reason why this origin should be favored rather than others.

The question of nomenclature or terminology does not come within the scope of this discussion; but, to avoid confusion and misunderstanding, it would seem desirable to define all glands having an internal secretion as "internal secretory organs", irrespective of what other functions they may perform, and restrict the term "endocrine" to those which produce an internal secretion and have no other function, notably the thyroid, parathyroid, thymus, adrenal and pituitary glands.

By experimental investigations, Korentchevsky (1) found that removal of the thyroid and gonads augmented the growth of malignant tumors in dogs. Thyroid alimentation diminished the percentage of successful tumor inoculations and retarded the growth of established malignancies. This author concluded that the state of the glands of internal secretion may be one of the important conditions determining nonreceptivity towards tumors.

Sajous (2) believes that sarcoma and carcinoma are closely connected with endocrine disturbance and more especially adrenal insufficiency. Cancer results from hypoactivity of the body's autodefensive mechanism, this mechanism being particularly under adrenal control. Sajous thinks that a cancer develops from a preexisting aggregation of adventitious cells, whether this constitutes a mole, nævus, wart, fibroma, ulcer, fistula or any other lesion of the skin or mucous membranes, including those resulting from chronic inflammation. As long as the nutrition of any one of these cell-aggregates is controlled by its arterial blood, it retains its benign character. When a debilitated condition of the organ or any other predisposing condition prevails, it develops a malignant growth which, in time, becomes a source of autointoxication. The adrenal system, becoming stimulated, supplies an excess of autoantitoxin; there is over-production of trypsin and nucleo-protein, and the tumor is supplied with the elements for its development.

According to Sajous' view, a cancer is initiated, nourished and caused to grow by blood constituents which, as agents of the organism's autoprotective mechanism, should in reality have destroyed it at the start.

Naame (3) of Tunis, who, since 1919, has advocated the glandular origin of cancer, takes a similar view, but believes the disease a thyroid-associated condition, i. e., thyroid imbalance plus disturbance of some gland connected with the region where the cancer develops. Naame's view may be summarized as disharmony between cell-production and cytolysis. Vicious glandular secretions result in the production of atypical cells.

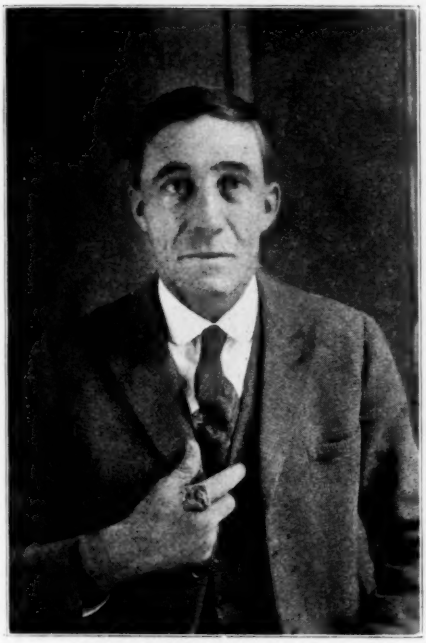
Control and Curability of Cancer

The control of cancer rests upon: (1) education of the laity to the prevalence and danger of the disease and the necessity of early submission of every suspicious lesion or ailment to thorough examination by a physician; (2) early diagnosis of malignancy by the physician.

The curability of cancer has been variously estimated by different authorities, and good results have been claimed for various methods of treatment. For the past 200 years, the majority of the medical profession have considered cancer as a strictly localized disease, at least in its initial stages, and that it was thus amenable to radical surgery. But, as has been shown, it is more logical to consider cancer as due to faulty metabolism and rather as a local expression of a systemic defect. Surgery generally fails to eradicate cancer because it does not reach its origin.

Dr. Walsh, in his able work on cancer, says: "The knife can neither be regarded as a means of curing cancer nor of prolonging the existence of the person affected with the disease."

Dr. James Wood, of the Royal College of Surgeons, London, said: "I have operated on some thousand cases of cancer and they all recurred but six, and they were not cancer." Sir Benjamin Brodie (one of the fathers in



Case 1. Fig. 1.

Case 1. Fig. 2.

surgery) said, after he had removed 500 cancers of the breast, that "he would not remove another without telling the patient that the operation would not prolong her life."

Sir James Paget, one of England's greatest physicians, in speaking of cancer said: "The number of cases in which cancer does not return is not more than one in five hundred." In my own practice, about four out of five cases of cancer that come to me have had a surgical operation, and the cancer had returned worse than it was before.

Dr. J. C. Bloodgood of the Johns Hopkins Medical School, in his article read at Milwaukee, Sept. 9, 1921, said, "What surgery has accomplished is the permanent control of cancer; cure of cancer is ineffective."

And this after the most renowned surgeons all over the world have exerted their powers to the utmost and marshalled their highest skill in the endeavor to prevent just such an outcome. Is it any wonder that a great fear of "cancer operations" has arisen among the laity, or that many members of the medical profession have lost faith in the efficacy of surgical treatment?

The Endocrine Treatment of Cancer

I have already referred to the endocrine origin of cancer, and, if this be accepted, it is but rational to seek a cure of cancer by glandular therapy. As Sajous (2) says: It should be our aim to raise, if possible, the functional efficiency of the body's resources by means of agents (such as the endocrine derivatives, thyroid in particular) which, by markedly increasing the function of the adrenals, correspondingly augment the proportion of autoantitoxin in the blood and other fluids. And the use of organotherapy, therefore, in treating a gland or organ that is apathetic or deficient may be counted on, not only to activate the particular gland that is inactive but also to control the one that is over active. Along such lines, it is my firm belief that the adoption of the endocrine therapy of the future as a therapeutic agent must be inevitable.

Although the literature of glandular therapy of cancer is scant, yet the results reported seem, to me, relatively better than those reported from any other method of treatment. Although thyroid extract was used by Beatson (4) and others in connection with the removal of the ovaries for cancer, it was first used alone for cancer by R. Bell (5) in 1896. In 1904 Bell (6) reported several successes some of which cases were observed for as long as nine years, including mammary and uterine cancers.

Case 2. Fig. 3.

Other successful treatments of cancer by thyroid extract were reported by Page and Bishop (7), Dennis (8), Beaver (9), Jones (10), Woods (11), etc. This treatment seems, however, to have given precedence to surgery.

Naame (12), in 1919, again took this question up. He then reported two cases of epithelioma successfully treated by thyroid and pancreas extracts. Unfortunately, in these two cases, there was no histological control. In a recent report he gives two further cases of cured facial cancer with histological control. He used thyroid in every cancer case to which is associated mammary, ovarian, suprarenal, etc. extract, according to the nature of the cancer. Large doses were used, but Sajous thinks that large doses cause renal impairment and he prefers small dosage, beginning with 1 grain and increasing gradually to 3 grains, three times daily.

My personal experiences with endocrine therapy in cancer is small but has been highly satisfactory, with the systemic treatment. The curative process may then be favored by the local applications of escharotics, the cautery, or other means which relieve pain and arrest hemorrhage.

I append notes of two cases in which I consider the results of endocrine treatment as very remarkable.

Case 1.—Mr. C., age 38 years; furniture dealer. Present trouble began 18 months ago as a small wart on right hand which was removed surgically as well as submitted to other treatments. The growth, however, recurred and when the patient came to me he was in the condition shown in Fig. 1. He had been advised to have the hand amputated but did not care to submit to such an operation. Histologically cancer.

Endocrine and systemic treatment was begun May 3, 1924. After 90 days' treatment, the results is as shown in Fig. 2.

Case 2.—Mr. W., age 63 years; farmer.

Case 2. Fig. 4.

Trouble began 4½ years ago as a small movable cyst over the costal margin on left side when the growth (about the size of a pea), which histologically was cancer, was surgically removed but recurred with the result shown in Fig. 3. The patient was referred to me for treatment March 11, 1924. He was put on endocrine and systemic treatment at once and the improvement in his general state and in the tumor is apparent from Fig. 4.

The time will soon come, let us believe, when we can lay the scalpel down and raise the flag of bloodless victory over this terrorizing monster. Let me hint, as a mere suggestion, that this may come when we have a fuller comprehension of the now so dimly understood endocrine system; in the treatment of pre-cancer conditions, and the initial cancer lesions.

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Why Do We Have Hemorrhoids?

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INTERNAL hemorrhoids are varicosities of the middle or superior hemorrhoidal vessels and arise entirely within the anus. They begin at the points of anastomosis between the portal and the caval systems. These anastomoses are very numerous. The most common origin is at the level of the valves of Morgagni, about one-half inch above the anal orifice, and from here they gradually extend up to the larger trunks and plexuses, a distance usually of not more than two inches. The venous radicals are elongated and tortuous and form localized clusters beneath the mucous membrane. Even normal veins are somewhat enlarged in this situation and are called glomeruli.

The Two Types of Hemorrhoids

Hemorrhoids occur in two distinct types, the small capillary and the large venous.

A capillary hemorrhoid is a small tumor rarely larger than the end of the little finger and some times as small as a pinhead. It is a true arterial nævus, lying in and immediately beneath the mucosa. It is oblong or plaque-like in shape, spongy in texture, bright red or purplish in color. It is somewhat raised and studded over with pin-head elevations, the whole tumor resembling a strawberry in

Fig. 1. Prolapsed internal hemmorrhoids. Direct view.

appearance. It is practically always single and situated at or above the internal sphincter.

Early in their existence, these tumors have a granular surface covered with a very thin wall and are very liable to bleed. Later, a plastic exudate and thickened areolar tissue covers the vessel, hemorrhage then occurring less readily. The gentlest examination or even the passage of the feces may be sufficient to start hemorrhage. I recall one case in which bleeding was profuse while the pile was no larger than the head of a black pin. Excessive hemorrhage, particularly if spurting in character, is pathognomonic of capillary hemorrhoids.

Frequently large amounts of blood are lost and a number of deaths have been recorded from this cause. Of course, a large capillary or arteriole is necessarily involved here.

This tendency to profuse bleeding makes a capillary hemorrhoid much more dangerous

Fig. 2. Prolapsed internal hemmorrhoids. Lateral view.

than the venous variety. In the palliative treatment this distinction is imperative, because the patient may be exsanguinated while the physician is temporizing with injections of styptics. The capillary piles do not protrude or cause any of the pain or discomfort attendant upon the venous variety. Hemorrhage itself is the cardinal symptom and requires energetic or even heroic treatment.

The venous hemorrhoids (Fig. 1 and 2) are of more common occurrence than the arterial. The pile may appear as a good-sized tumor, frequently one-half to one inch across its base and covered with a livid-bluish and glistening mucous membrane. Matthews reports seeing one as large as a small orange. These venous hemorrhoids are situated in the submucous connective tissue. They begin in the venous pools and are composed of a diluted and varicosed vein, with its capillaries, and also the arterial capillary supply. They are located, usually, one on each side and slightly in front of the posterior commissure, and on the right and some times the left of the anterior commissure. Sometimes the whole anal ring is a mass of varicosed veins, espe-

cially when due to disease of the heart, liver or kidney, and this varicosed condition may extend the whole length of the rectum and even to the colon. Sometimes several small veins may be twisted together into one mass. The sacculations and varicosities are limited to the venous vessels and do not affect the arteries. The tumor is not wholly composed of veins but around this mass of vessels there is a fibrous capsule which sends trabeculae (partitions) in between the veins. As the tumor increases in size the mucous membrane covering the pile is chronically inflamed by the trauma of each passing stool and the walls of the veins early are thickened by this inflammatory hypertrophy. Sometimes such vessels may form large venous pockets.

The relative proportion of the vascular and connective tissue elements determines the firmness and other physical characteristics of the pile, and is an accurate means of determining the length of time the tumor has existed. In long-standing hemorrhoids, the connective tissue preponderates over the vascular elements. There is no increase in the arterial supply of the hemorrhoid. Usually one or two small arterial twigs are found but the lumen of the artery may be very large.

The blood in one vein may coagulate and the clot be transformed into fibrous tissue. Such changes occur as a result of inflammation and infection.

The Relation of Proctitis to Hemorrhoids

Early in my work I noticed this association of hemorrhoids with proctitis. The acute catarrhal proctitis is often met with, and always you will find an edematous mucous membrane with its hemorrhoidal vessels engorged. As the proctitis subsides, the hemorrhoidal edema and engorgement also is reduced and finally disappears. If, however, the proctitis persists as a subacute or chronic form, the hemorrhoids also continue and a gradual hypertrophy of the mucous membrane results. This increases the bulk and weight of the mucosa, until it separates and slides down on the areolar tissue and is grasped in the sphincter. The spaces of the submucosa about the hemorrhoid are filled with connective tissue. Later, when the proctitis reaches the atrophic stage, the hemorrhoids remain, because of this connective tissue infiltration which permanently constricts the venous overflow.

Now there enters a second factor. The descending fecal mass, acting in the reverse direction on the veins, distorts the latter further and tears more mucosa from the muscular wall. With each bowel movement, the hemorrhoidal mass acts as an obstruction as the feces are forced through. This increased muscular action drags down the hemorrhoid and the adjoining mucous membrane until they prolapse, thereby increasing the size ot the hemorrhoid itself. Finally when they have attained considerable size, they prolapse easily and act as foreign bodies tending to excite the sphincter to spasmodic contractions.

Causes of Hemorrhoidal Congestion

Hemorrhoids brought on in the manner described are the result of digestive disturbances, the improperly digested or fermenting bolus acting as an irritant. In this way, constipation is a frequent cause, while the vein is ruptured by the engorgement and stretching due to the passage of the feces. Thus it is that drugs used to relieve the constipation (aloes, senna, calomel, gamboge, etc.) also frequently congest the rectal circulation. Warm enemas also act in this manner. Certain articles of food, by irritating the mucous membrane, cause increased peristalsis or tenesmus and thus provoke hemorrhoids. (Notable among irritating comestibles are spices, peppers, mustard, sauces, radishes, water-cress, tamales, chili con carne and pickles, also alcoholics and tea.) An excess of a carbohydrate that cannot be cared for by the liver blocks the portal circulation and, later, the hemorrhoidal vein. These dietetic changes account for the apparent influence of the seasons upon the hemorrhoidal circulation. As the warm, spring weather comes, the system cannot dispose of the same amount of carbohydrates as it had been accustomed to do during the winter, and so the load is thrown upon the portal circulation.

Besides constipation, there are other conditions that cause straining or a bearing down and thus tend to congest the pelvic venous current, among these, particularly, stricture of the rectum or urethra, stone in the bladder, an enlarged prostate gland, the pregnant uterus or a myoma of that organ, pelvic exudates, adhesions, even a retroverted uterus. It is well to bear each of these conditions in mind, because a patient may consult you when suffering from one of them and, at the same time, complain of hemorrhoids. The hemorrhoids, however, do not require treatment directly, being wholly dependent upon the underlying condition. In this same manner, all those occupations that increase the abdominal or pelvic pressure will induce hemorrhoids, such as severe muscular exertion or prolonged standing or sitting still, especially if on a

vibrating platform, as in the case of railroad men, or teamsters. Desk workers also frequently are sufferers, owing to sitting in a bent-over position, which crowds the abdominal contents toward the rectum.

One other class of positive causes of hemorrhoids is disease of the heart, liver or pancreas, and syphilis. Since the exciting cause in this class of cases cannot be removed, there is no hope of curing such hemorrhoids and a tentative treatment is all that should be undertaken.

Dietetic Treatment of Infantile Diarrheas

By CHAS. S. MOODY, M. D., Rigby and Menan, Idaho
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TIME was when the general practitioner and even the pediatrician called to attend a case of infantile diarrhea did not concern himself greatly with the *cause* of the complaint but salved his conscience with several prescriptions of more or less effective remedies (generally less); and, if the baby died (the usual thing) he laid it down to a visitation of Providence and went merrily on his way, treating the next case in exactly the same manner with exactly the same results. If the remedies now used, and that have been used, for infantile diarrhea were compiled in one book, they would make a respectable volume in themselves. The author remembers reading in the biography of Marion Sims of how when he was a young man he was called to a case of this kind and wrote the first prescription in the book; the next day he wrote the next and so on until the baby died. The writer also recalls with painful distinctness when he was a student being left in charge of a coal mining town, during the hottest days of August, in Missouri (and anybody who has ever lived in Missouri can testify how blamed hot it can get there) and there came an epidemic of infantile summer complaint. He visited the homes of the aillicted, day after day, armed with the usual remedies which were dispensed by the gallon, and, in spite of it all, the babies died like flies. It was the saddest sight in his long professional experience to see the father, with the little coffin on his shoulders, followed by the mother and several straggling children, plodding out to the cemetery to deposit all that was left of the little sufferer in the arms of Mother Earth.

Medicinal measures have but little place in the treatment of infantile diarrheas. The treatment is almost entirely dietetic and hygienic, and the physician who pins his faith to bismuth and opium is doomed to failure.

While infantile diarrheas may be divided into three classes— that is, intestinal indigestion, infectious and miscellaneous—by far the greater number of your cases will fall within the first two classifications; and for the purposes of this article consideration of these two only will be given.

In the first class, the cause may be traced to (1), simple intestinal indigestion due to the ingestion of fat, sugar, starch, protéid; (2), underfeeding; (3), overfeeding; (4), lowered tolerance for food.

In the second or infectious class comes (1), fermentative; (2), putrefactive; (3), mild types of infectious diarrhea; (4), dysentery; (5), cholera infantum.

The writer fully appreciates the fact that the classification under intestinal indigestion is open to criticism as being unscientific, and his only excuse for giving it is that it may be easily grasped by the general practitioner—and it is the general practitioner we wish to reach.

In class 1, the diarrhea is caused by overfeeding the infant more fat, sugar, starch, or proteid, than the individual infant is capable of digesting. It is rather difficult at times to exactly lay your finger on the offending food element; nor is this necessary from a practical standpoint. By omitting the starch and artificial sugar and boiling the milk in order to render the proteid more digestible, cutting down the fat to the amount contained in about one-third milk and two-thirds water, the diarrhea may be overcome.

Indigestion caused by fats is generally due to feeding too much top milk. Infants having good digestive power do not suffer but those in whom the digestive functions are below par invariably suffer. In extreme cases, the infant should be placed upon a fat-free diet entirely until the diarrhea is overcome; then resume the fats very gradually.

Many cases of diarrhea are due to underfeeding. That is, the infant has an attack of diarrhea and is treated by weakening of the food elements. The stools do not improve and the weakening process is still further carried out until the infant is actually starving. The food diarrhea gives place to a starvation diarrhea and the infant dies of in-

anition plus the diarrhea. This constitutes one of the most difficult complications to treat. Milk and water boiled together without sugar will correct the disturbance.

Diarrhea from overfeeding is usually brought about by the mother in her desire to see the bady gain weight, feeding it many times, if reckoned in calories, far beyond the body needs. This of itself will bring about diarrhea which will be easily recognizable by the undigested food materials in the passages. The cure is obvious.

Perhaps diarrhea from lowered food tolerance will present the greatest difficulty to the general medical man. Some infants have a very narrow limit between their digestive power and the quantity of food they require to make weight. The stoppage of all sugar will decrease the number of bowel passages, but the baby will not gain in weight, and immediately the sugar is renewed the diarrhea will light up again. Fortunately, these cases are extremely rare and are managed by a very gradual resumption of the sugars in the form of malt-dextrose, or, failing in this, placing the baby on a straight diet or protein milk according to the Finkelstein formula.

The second or infectious type of diarrhea will largely be found to constitute your patients, especially during the summer and early fall months. Of the infectious class, the fermentative will be found to take precedence in a great degree over the other four causes. If a largely carbohydrate diet is given during the warmer months, the infant is very likely to develop a fermentative diarrhea. There is an academic question which arises with regard to this class of diarrhea. Finkelstein attributes this form to carbohydrate indigestion, while Kendall and his followers show a bacterial cause. Bedside experience shows that perhaps both these gentlemen are correct, or, in other words, both causes working together produce the complaint. The treatment will be the same no matter which hypothesis you espouse, that of stopping all carbohydrates or the administration of milk and water boiled together. It is an undeniable fact that, in the fermentative diarrheas, the Finkelstein protein milk will be found of great value.

Putrefactive diarrhea caused by the bacteria which thrive on proteins is the next most important from a clinical standpoint. The differentiation is easy for the observing physician. The litmus test is practically all that is necessary and one that is easily carried out. The reaction of fermentative is acid while that of putrefactive is alkiline. Fermentative-passages excoriate the buttocks and surrounding skin while putrefactive does not. The sour odor of fermentative diarrhea is characteristic, as is also the foul (odor of decayed meat) of the putrefactive form. There is one point which it is well to consider at this time, and that is the evident power of fermentative bacteria to transform themselves into putrefactive organisms. In other words, it is not infrequent in treating a case of fermentative diarrhea by the stoppage of sugars that the practitioner finds himself confronted with a case of putrefactive diarrhea. Theoretically, the treatment then consists in loading the digestive functions with carbohydrate again in order to "starve out" the putrefactive organisms.

In summing up, in fermentative diarrhea, remove all carbohydrates and increase the proteins; in putrefactive diarrhea, eliminate the proteids and increase the carbohydrates. This will be found effective in general practice as well as in theory.

Mild infectious types of diarrhea will be more often found than the severe forms. They are characterized by their sudden onset with fever and usually vomiting and are due to contaminated food materials. They will be found foul, sour, or odorless and more generally acid than alkiline. This is the form where starvation finds its best application. Remove all food from twenty-four to thirty-six hours and sustain the baby on boiled water. Here, also, is the only place where the author finds remedial measures of value. He sweeps out the intestinal tract with a swift dose of castor oil, then permits the starvation process to complete the cure.

Dysentery.—In the Mississippi valley states, this is the scourge of infants during the summer months and many a physician has stood aghast at its ravages. So familiar is the clinical picture that it were carrying coals to Newcastle to further describe it. It may be well to suggest that, at the present time, we have demonstrated that not one but several forms of microorganisms are responsible for these attacks of dysentery, the Flexner, the Shiga, the colon bacillus and not infrequently a streptococcus. It is also a fact of newer application that these bacteria no longer produce toxins when the diet is almost exclusively carbohydrate and that accounts for the fact that a great many of these cases recover promptly on an exclusively carbohydrate diet. Like the mild infectious type, dysentery should begin by the starvation method. For twenty-

four hours, nothing should pass the mouth but plain, unsweetened water. There are two very cogent reasons for this: first, it gives an opportunity for the inflamed mucous membrane to resume its tone and, second, the presence of food materials in the stomach and intestines furnishes an active culture media for the bacteria. If the body fluids have been rapidly drained by the excessive vomiting, it is advisable to inject normal salt solution under the skin or directly into a vein. After the starvation period, plain barley gruel may be given for three or four days or until the child has regained strength enough to assimilate a more concentrated form of carbohydrate. It is well to suggest right here that immediate results in severe forms of ileocolitis should not be expected; the disease is of slow recovery.

Cholera infantum differs from dysentery in that there have been no specific bacillus differentiated and also in the absence of blood in the passages. Clinically, it differs in its more rapid onset and more rapid course, severe cases dying in collapse before remedial measures can be effected for their relief. Every bedside clinician is familiar with the appearance of a typical case of cholera infantum—the clammy cold skin surface, the pinched face and deeply-sunken eyes, constant vomiting, profuse watery stools which have lost their fecal character and nothing remains but the typical "rice water" evacuations, the high rectal temperature, in short, the general appearance of "drying up". Such infants call for immediate and vigorous treatment and the physician is excusable if he flies to his materia medica for relief. The dietetic treatment of these cases is extremely difficult on account of the vomiting which precludes the possibility of ingestion of foods by the mouth. The first care of the physician is to restore the loss of water which in itself will overwhelm the patient in a few hours unless something is done to prevent it. Treatment, no water or other fluid by the mouth, repeated baths at 105 degrees, stomach to be washed with warm water once only. Bowel irrigated with two quarts of warm water, twenty drops of brandy subcutaneously every four hours, eight ounces of sterile normal salt solution in the jugular, four ounces subcutaneously in a different place every four hours. Three days later, one-half ounce of water by the mouth every half hour. If this is retained a larger amount may be given until, on the fifth day, water may be given at will. Sixth day, one tablespoon of barley to the quart of water, feed four ounces every two hours; later, one-third milk and two-thirds water boiled together and given four ounces every four hours. This, mind you, will not cure all your cases of cholera infantum, but it will bring you through with more of them alive than anything in the way of medicines.

The writer desires at this point to offer his apologies for burdening his readers with this rather imperfect sketch. It is not intended as a scientific treatise on the subject, but it is given in the hope that many professional brethren who have been accustomed to dosing infants with diarrhea will desist and give dietetic measures a chance.

Your success has not been flattering with bismuth and opium. Then why persist in its use?

Vitalizing Biology

By C. L. REDFIELD, Chicago, Illinois

IF you cut off the tail of a mouse, the mouse will remain in a tailless condition, and that is true whether the mouse is dead or alive. And if you cut off the tail of a mouse, the wound will heal. That is, the wound will heal if the mouse is alive, but it will not heal if it is dead.

Here is a clear distinction. It is evident that the tail of a mouse and the power of healing a wound are not in the same class or order of things. The power of healing a wound is a characteristic of life. A tail is a product of life and not a characteristic. The power of producing a thing and the thing produced are not the same.

The word "biology" comes from a Greek word meaning *life*. The word "vitalism" comes from a Latin word meaning *life*. Of course "ology" means a science, and "ism" means something which a person is expected to believe; but, otherwise, the words are of identical meaning. In fact, many things which pass for ologies are nothing but isms.

Biology is supposed to be the science of life; but, at present, it is a science of the dead and needs to be vitalized. Our biologists do not tell us what life is, what it does, or what its characteristics are. They confine their attention almost exclusively to studying the dead products of life, and say little or nothing

about life itself. When they do discuss living things, they tell us about the body and not about the life.

The vitalists stick more closely to their own definition, but they go off at a tangent into the unknown, and make no effort to bring their doctrine into line with something we know about. "Animate" and "animism" mean life and action, but come from a Latin word meaning mind or soul. The vitalists assume or postulate a universal mind or soul as being the essence of life, and the animating and directing principle in evolution. This is an abstraction which takes us out of the field of science and into the realm of speculation.

In opposing this, biologists and physiologists have gone to the other extreme. Like the man who tries to make a perpetual-motion machine, they have put into their "mechanistic" conception about everything except the power necessary to make the wheels go round. This power they seem determined to omit, even at the expense of inconsistency, and of continually coming into contact with problems which are unsolvable by their theories. For example, in the article on Physiology in the Encyclopedia Britannica, it is said that the "doctrine of vital force was definitely and finally overthrown", and a little further along in the same article it is said that the ultimate object of physiology is to discover "the exact cause of these manifold vital phenomena". Just as if a *cause* could be anything else than a *force!*

It is very certain that the cause of "vital phenomena" must be a "vital force", but it does not follow that it is necessary to go completely out of the realm of the known to find that force. It is the object here to show the relationship of this vital force to the forces known to physical science, and to do that it is necessary to draw some illustrations from mechanics. It is proper to do so because the persons who deny the reality of vital force claim to be mechanistic. That claim is made by the author of the article on Physiology from which I have just quoted, and it is also made by Huxley in his article on Biology in the same encyclopedia. As I am myself a mechanic, it is reasonable to assume that I might have something to say about what is mechanistic.

Take a wheel, such as a large and heavy grindstone. By applying a turning force you can make that stone turn, and by continuing to apply force you can give it a high speed. In this condition the grindstone has motion stored in it. The fact that motion is stored in it is evident from the fact that it will continue to move for a considerable time after you have ceased to apply a turning force. That motion is itself a force, and the motion ceases only when the force is used up in overcoming frictional resistance.

The thing stored in the wheel by this operation is ordinarily termed "energy", but in the present case I am going to refer to it as motion. I have found that to a good many persons the term "energy" is a meaningless word, whereas everyone knows what "motion" is, and everyone knows that it is neither imaginary nor mystical. It is true that the quantity of energy and the quantity of motion in a moving body are not identical, but as far as anything here is concerned, they may be considered to be the same thing. We are talking now about characteristics and not about quantities.

If you take a hand pump and pump water from a well into an elevated tank, something will be stored in that water. What is the thing which will be stored in that water? Examine that water by all the chemical and physical tests you please, and it will be found that the water in the tank is identical with the water in the well; yet something is stored in the water in the tank. What is that something?

The thing stored in the water in the tank is motion, and to get that motion out it is only necessary to open a valve and permit the water to run down. If the water runs down through a water-wheel, the motion may be conveyed to and stored at some other place, as in a grindstone which might be turned by the water-wheel. If the water simply falls on the ground, or flows back into the well, the motion of the water as a body is changed to motion of the molecules of water among themselves, and that is heat which may be measured by a thermometer.

The motion in the rotating grindstone is active motion. That in the water in the tank is potential motion which can be transformed into active motion by simply releasing it. The transformation, back and forth, of one kind of motion into the other, is readily seen in a swinging pendulum. At its lowest position, the motion of the pendulum is solely active motion. At its highest position, the motion is solely potential.

The difference between a live animal and a dead one is that one is capable of automatic motion and the other is not. In other words, life is stored motion.

Saying that a man is an animal does not

mean that an animal is a man, and saying that life is stored motion does not mean that stored motion is life. There are a good many kinds of motion, and each has characteristics of its own. Motion of molecules among themselves is known as heat, and heat is something we pay good money for. Motion in the ether is electricity or light according to the length of the waves involved, and we pay good money for those kinds of motion. And so on for other kinds of motion, all of which are very definite and real things. In common language, we use the word "power" as a generic term for different kinds of motion.

Each kind of motion is a "force", and "vital force" is nothing else than the particular motion which is life. Now it happens that all kinds of motion are transformable into each other, either directly or indirectly, and life is no exception to that rule.

Heat units or calories are potential motion stored in food. Each living animal is continually expending motion from its stored supply. Shut off the new supply of heat units received from food and the animal dies as soon as the previously stored supply is exhausted. Here is evidence which shows that heat units and life are simply different forms of the same thing.

In the cases of the grindstone and the water before mentioned, the motions given to the rotating grindstone and the pumped water are taken from the man who does the work, and undergo transformation in being so taken. Now it happens that, if a man works hard enough and long enough at turning grindstones or pumping water, or doing any other physical labor, he will cause his own death by that process alone. In other words, the motion which a person takes out of himself by his own exertions is life itself, and if he carries it beyond a certain point, no life remains. He is dead.

For the benefit of those biologists who think they are mechanists, I have something more to say about mechanics. No mechanician ever designs a mechanism with the idea that the power to drive it is a function of the mechanism itself. In mechanics, no mechanism ever does any more than transform the motion delivered to it and apply that motion to specific purposes. Power can build mechanisms out of unorganized material, but no mechanism can produce power out of itself.

While the mechanisms of the mechanicians do not produce the power which operates them, many mechanisms are designed to carry on hand a supply of power for operating purposes. And many of them utilize part of the power supply to govern and control the mechanism so that it will use greater or less quantities of power as circumstances may require. That is done through the governor of a steam engine. Again, some of them use part of the power supply to take cognizance of continually changing circumstances, and to guide the mechanism through a maze of obstructions, very much as a man threads his way along crowded streets or through a forest. The automatic telephone exchange does that.

The same things are true of those mechanisms known as living organisms. That power or motion which we call life can build organisms, but no protoplasmic organization can produce life. We see life operating to produce organization when an animal grows, when a wound heals, and when a lost part is regenerated, but we never see the protoplasm of a dead animal producing life.

Not only does life build the structure in which it resides, but it is capable of tearing down a structure which it has previously built and using the materials to build a new and different structure. Such tearing down and rebuilding occur in cases of metamorphosis, as when a caterpillar is changed into a butterfly. They also occur when the embryo goes through those changes which form the basis for the "recapitulation theory". The "germ-plasm" is not a mysterious substance endowed with supernatural powers, as represented by the biologists. It is a special structure which life builds for a special purpose, the little boat in which life sends forth its colonists.

The object here is to show that the outlook in physiology, and biology in general, should be reversed so as to take the viewpoint of the vitalists. But taking that viewpoint does not mean adopting the idea that life is some non-physical thing—something which cannot be observed by the senses or measured by instruments. When we apply to it the various tests known to physical science, we find that life is one variety of the thing which drives the steam engine, the windmill and the water-wheel. And when we apply this reversed view to physiology, we find problems being solved, and inconsistencies disappearing.

It is not necessary for the vitalists to postulate some mind-stuff or imaginary vital principle to account for what we find in living organisms. Given an ample supply of any kind of motion that can be harnessed, and the engineer and mechanician will make inorganic bodies do many of the things done by living organisms, and even by the intelligence of man. A mathematical calculation is the work of intelligence, but a calculating machine driv-

en by a steam engine will do the same work.

One of the fallacies of trying to represent powers in terms of material bodies is seen in the current theories about the nature of *fatigue*. According to those theories, fatigue is due to the action of toxins which result from the breakdown of cellular structure during physical exertions. But no animal can be poisoned by any substance with which it and its ancestors have been in contact for a long time, and fatigue has been associated with our ancestors as far back as ancestors existed. If such substances exist, they can by no possibility be toxins. They can be only innocuous débris—ashes which clog the furnace.

There is a much better explanation of the nature of fatigue. When a person engages in physical efforts, he is expending part of the motion stored in his organism. Fatigue is simply the organism's automatic signal that the supply of motion is being depleted. Similar automatic signaling systems are common in mechanics, and they are operated by the motion being depleted. A steam gage which indicates the pressure in a boiler is one of them, and a thermostat which controls a furnace is another. In physiology, hunger is such an automatic signal.

Another fallacy is found in the idea that immunity is due to antibodies in the blood. These antibodies are supposed to be produced by the individual during an attack by disease, and to act to neutralize the toxins of the disease. Also, they are supposed to remain in the blood and furnish immunity against further attack by the same disease.

If resistance to bacterial attacks is due to bodies of any kind, then a dead animal should be just as resistant as a live one. But a dead animal is unable to resist anything, and is rapidly destroyed by bacteria. The real resistance is the life in the animal, and that is the motion in it which is adjusted through governing mechanism to meet the attack. Similar governing mechanisms are common in automatic machinery, but in each case it is the motion which operates the governing mechanism and does the work. A body contains motion, but does not produce it.

Fatigue represents an exhaustion of strength so that a person is unable to exert himself as he can when not fatigued. When a person begins to recover from a considerable illness, he is exhausted in the same way. That is, he is fatigued. Now, taking the current theories of fatigue and antibodies together, we have a queer inconsistency. When a person is attacked by disease, his system produces antibodies to overcome the toxins of the disease, and in doing so it poisons itself by producing the toxins of fatigue, against which it develops no antibodies.

It is well known that, if a person becomes exhausted by long continued overexertion, he is much more liable to attack by some bacteria than when not so exhausted. No one has yet advanced the theory that physical efforts, or mental worries, use up the antibodies in the blood, and that new antibodies of the same kind arise by some form of spontaneous generation when a person recuperates by rest, but such must be the fact if it is antibodies which furnish immunity. The real thing taken out of the system by physical efforts is foot-pounds of work, and foot-pounds are nothing else than force and motion, or the thing we have been identifying as life.

It is also known that if a person becomes chilled by long exposure to cold, he is more liable to attack by disease than when not chilled. In fact, a person may die from no other cause than prolonged exposure to cold. The process of chilling is a process of taking molecular motion out of the body. If taking away motion is taking away life, it is not difficult to see that life is motion. Also, that it is life—vital force—which resists disease, and not antibodies.

If you break a metallic object, the parts may be secured together by soldering, electric welding, or in some other manner and, as soon as the work of securing is finished, the job is completed. There is nothing more to be done. If you cut your finger or break your leg, the doctor may dress the wound or set the bone, but he cannot do the healing. You must do that yourself by the action of the life that is in you, and it takes time beyond the mechanical operation of putting the parts together. The healing is a vital operation, and vital things cannot be delegated.

After a child is exposed to the measles, there is an "incubation" period of from ten to fourteen days before the appearance of "symptoms". In four or five days more, the "eruptions" occur. In a few more days there is the "crisis", and the patient either dies or recovers.

This is an example which illustrates the "time" element which enters into diseases in general. For the benefit of those persons who think that "germs" do not produce disease, it should be noted that nothing but some living organism which multiplies by reproduction can produce that kind of result. Action by some non-living thing, as a blow by a club, is

sudden and produces its greatest effect very soon, and not after a period of weeks. In cases of poison, like snake venom or arsenic, the maximum effect comes quickly and then diminishes. When the ailment begins gradually and reaches its maximum only after a considerable lapse of time, it is not necessary to find the "germ" to know that it is some living organism which is making the trouble. It is only necessary to know the characteristics of actions by the living and the nonliving.

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Eight Certified Centenarians

By J. M. FRENCH, Milford, Massachusetts

IN December, 1912, a correspondent of the *New York Sun* questioned the accuracy of the published records of persons reported to have reached the age of one hundred years or more, and challenged proof of any such cases, in either ancient or modern times.

The Boston Post responded to this challenge by calling on its readers and correspondents in all parts of New England to send in verified proof of the ages of any residents of New England who were then living. Said proof was to be based on the registration of their birth, or date of baptism, or any other evidence which would be accepted in courts of law.

As a result of this request, eight well-authenticated instances of centenarians then living were forwarded to the *Post* within the next few weeks, and duly published. Each report was accompanied with the sworn statement of the town clerk of the towns in which the individuals were born, identifying the individual, and certifying to the date of birth as given in the ancient records. It also contained a brief report of the more important events in their lives, a statement of their family history so far as it could readily be obtained, and those conditions surrounding their lives which might have had an influence upon their longevity.

When all of these records had been published, the *New York Sun*, which had sent out the original challenge, expressed itself as satisfied that these persons were real centenarians, there being no reason to impeach the correctness of the records.

Here, then, were eight persons living in the New England states, whose ages were certified by the town clerks of the towns in which they were born, and who were thus legally proven to be one hundred years old or older. This of itself was enough to settle, once and for all, the main question in dispute.

When these records as published in the *Boston Post* fell into the hands of the writer, he at once set out to verify them, and secure such additional information regarding each of the eight persons as might be of interest to the general reader and of practical value to the student of longevity. By personal correspondence with the centenarians themselves and their near relatives and friends, he was able to obtain many of the essential facts not given in the published reports, and also to keep in touch with each member of the list until the last one had passed away. His object was to find out what kind of persons live to be a hundred years old, and what are the conditions favoring such extreme old age. It is true that so small a number cannot justify any hard and fast conclusions; and yet much can be learned from a careful study of even eight certified cases.

Since the value of records of this character to medical men does not consist so much in the history of the events of the individual lives, as in the study of their heredity and environment, with a view to determining the elements which favor long life, no detailed history of individual cases will be given, but only an analysis of those elements which may be supposed to have had an influence on their longevity.

The aggregate age of these eight persons was 829 years nearly, and the average age was 101.625 years nearly. The oldest was aged 108 years, 3 months and 25 days at the time of death; and the youngest, 101 years, 1 month and 28 days. In every instance, the date and place of birth was certified by the town clerks of their native towns. The date of death was obtained by the writer through personal correspondence. They are therefore as reliable as competent testimony can make them.

As to race, they were all native Americans, of English parentage. As a whole, they were typical representatives of the early Puritan settlers of New England. Each one was born, lived and died, in New England. All were born and bred in the country, and no one of them ever lived for any considerable time in the city. This does not prove that there were no foreign-born centenarians in New

England at this time, but only that they were unable to present the necessary legal proof of the date of their birth. Nor does the fact that they all lived in the country prove that life in the country is more favorable to longevity than is life in the city; but only that, during the century of their lives, the country dwellers greatly exceeded the city dwellers in New England.

Coming to the matter of sex, six of these centenarians were women, only two were men. This does not prove that three times as many women as men live a hundred years. It is, however, very suggestive in that direction, when taken in connection with the fact that, in the state of Massachusetts, during the last 25 years of the nineteenth century, out of 440 persons reported as dying at ages 100 or over, there were 332 women and only 116 men, or very nearly three times as many women as men. Also other statistics show that a somewhat similar ratio prevails very generally.

Marriage claimed them all. One was married twice, and one was not married until she was fifty years old. These figures, while dealing with too small numbers to prove anything, are in line with the general run of statistics. Thus, out of the 448 centenarian deaths above referred to in Massachusetts, 91.75 percent had been married one or more times, 6.25 percent had never been married, and in 2 percent of the cases the facts were not given.

In the matters of physique and constitution, they were all well endowed, though one woman—the same who remained unmarried until fifty—was said to have always been rather delicate, and was obliged to give up fitting herself for a teacher on account of her health. Another, a minister who lived to be 105, had no serious illness until he was seventy, after which he suffered to some extent from rheumatism and kindred ailments.

As to mental and moral characteristics, each of these aged persons possessed a good mind, far more than the average of native ability, and at least a fair education for their day and generation, though none of them was highly educated even according to the standard of the time and locality. Each of them, with one exception, is recorded as possessing a cheerful disposition, and the habit of looking on the bright side of life. The exception was found in the one who was "always rather delicate". High moral and religious character is an outstanding feature in nearly every instance. Nearly all of them were members of some Christian church. On the whole, the record is remarkable for its association of great longevity with sterling character, good mental ability, and practical religion.

The occupations, environment, and modes of living of these centenarians were those of the average dwellers in the country farmhouses of New England in their day. They were farmer's sons and daughters. The girls were trained early in life to help mother in taking care of the younger children, and in the other duties of housekeeping and homemaking. The boys did the chores and assisted in the harder work around the farm. Both boys and girls got what schooling their parents could provide for them. Some of them pushed on beyond this point, and carried their schooling farther, one or more with a view to teaching school, and one in preparation for the ministry, which he followed for 75 years. With one exception they married early. Each woman was a housekeeper, and servants were unknown. Often they did much hard work on the farm as well as in the house. One of them, after a married life of ten years, was left a widow with five children, all of whom she brought up and gave a good education and a good start in life. One lived all her life, except one year, in the town in which she was born. She was a model housekeeper, excelled in spinning, weaving, embroidering and making lace, often taking premiums at the county fairs. No doubt, she enjoyed these diversions quite as much as her descendants enjoyed their afternoon bridge parties. One and all, men and women, they worked hard, lived largely out of doors, ate simple food, and indulged in but few diversions.

One man, the only professional man in the list, was a Methodist clergyman for 75 years, preaching in 22 towns in Vermont and New York, attending 200 funerals, uniting 1,000 persons in marriage, and was said to be the oldest Methodist Episcopal clergyman in the country at the time of his death at the age of 105 years.

The last item to be considered is the family history, or hereditary longevity. This we will outline briefly in four generations:

First Generation: Grandparents of the Centenarians—Of the 32 grandparents, only nine are reported. Of these, the average age at death was 80 4/9 years, ranging from 70 to 88 years. It is not to be supposed that these figures would be kept up if the remaining 23 were included; but enough have been given to show that old age was a common thing

among them.

Second Generation: Parents of the Centenarians—Fifteen of the sixteen parents were duly reported. Their average age at death was 76 1/15 years. The range was from 40 to 90 years; but the one dying at 40 met his death as the result of an accident. The next lowest one was 58. Eight were past 80.

Third Generation: The Centenarians Themselves, Their Brothers and Sisters—The whole number of this generation as reported was 63. The report is imperfect in a number of instances. Two families having 20 children report the ages of only the two centenarians, and another family of 13 children reports that a number of them died quite young, and that the average age of the whole was 41 years and 8 months. This leaves 30 not accounted for. Of the others, four died at ages from 40 to 70; five from 70 to 80; two from 80 to 90; and eight 100 years and over. The rest are assumed to have died mostly in early life. The proportion dying in infancy and early childhood was notably large as compared with the present day.

Fourth Generation: The Children of the Centenarians—The whole number of these children was 32; barely more than half as many as their parents had. One woman had no children, having been married at fifty. and four were living in 1920 at ages 67, 71, 74, and 77. Another had three children, one of whom died at four, the others were living at 70 and 73. Another had three children, none of whom was living in 1913. Another had four, two of whom died young, one was killed in the Civil War, and one was living at 69 in 1913. Another had two children, both living in 1913 at ages 76 and 78. Another had nine children, only three of whom were living in 1913. The whole number of children born to these centenarians was 32, of whom exactly one-half were living at the times of my inquiries, at ages 67 to 78. The others had died in early life, one or more in the Civil War, or were not reported.

One thing the record makes clear, that the one qualification which had more responsibility for favoring the longevity of these eight certified centenarians than any other element in their career, and probably that all others combined, was their heredity. They came from long-lived families, and they transmitted the capacity for long life to their descendants. They were endowed with good constitutions. They were made to last a hundred years. The family history is not complete in all cases, but enough is given to show that the longevity of these four generations was unusual, and considered, as a whole, remarkable.

2 S. Main St.

Lachesis in Septicemia

By H. F. BIGGAR, M. D., F. A. C. S., Cleveland, Ohio

Editorial Comment.—Lachesis is a great favorite with our Homeopathic friends. It is prepared from the venom of the fer-de-lance, the most poisonous and dangerous of snakes, whose bite usually causes death, sometimes almost immediately. This snake lives in the dense forests skirting the banks of the Amazon, in Central America and some of the West India Islands.—ED.

LACHESIS is a valuable remedy. The following cases were cured with lachesis; their history may be of interest.

Case 1.—A lad, æt. 14, an athlete, injured his right shoulder while a competitor at a baseball contest. This injury was followed by a suppurative arthritis of this joint, suppurative synovitis of right knee, acute osteomyelitis of right humerus and right tibia, complicated with purulent effusion of right pleura, and septic parotiditis of right gland. During a period of two months, the patient had sixteen operations, under an anesthetic for osteotomy of humerus, tibia and fibula and drainage of knee besides seventy-three abscesses opened. The right lung and pleura were involved, necessitating thoracic paracentesis. His illness extended over a period of several months. The patient was freely stimulated with whisky punch, quinine and strychnia, also arsenicum and other remedies as were thought to be indicated. When the parotiditis was at its height, the consultant, a very able surgeon, gave a very unfavorable prognosis, stating that he "never knew a case of septic parotiditis to recover," and sustained his decision by naming some of the leading surgeons in this country and England as authority for his opinion. He fully agreed with the treatment, and remarked that, "that was all that could be done." Subsequently, in addition to this treatment, lachesis was given. For weeks the case was desperate but finally recovered. This patient lived in the neighboring town of Wellington

where, for weeks, the writer visited him almost every evening. Every morning a report of the patient's condition was received by telegram.

At our club lunch, the doctors had a round table especially for their service; at this coterie, the consultant in this patient was one of us and was deeply interested in the daily reports, as well as the other doctors of our lunch set. The symptoms, pathology and treatment were freely discussed, with the usual ending that your patient will die, for none ever recover with septic parotiditis. When convalescence followed, they were amazed and delighted; lachesis contributed to his recovery. The writer then told them that, in addition to the approved sustaining treatment, lachesis had been added. Many were the witty sallies, pleasantries, and remarks as to the efficacy of the only few drops of lachesis ever secured for all the future preparations of this remedy.

Case 2.—Gentleman æt 52. Suppurative synovitis of left knee, the result of sewer-gas poisoning. Septic parotiditis developed. The same consultant as in the former case was called; his prognosis was unfavorable and immediate amputation of the thigh was advised as the only hope. The usual quinine and stimulants were freely given with the addition of lachesis. Result, recovery with ankylosed knee.

Case 3.—Gentleman æt 56. Septic parotiditis following prostatic abscess. The writer was the consultant and advised lachesis in addition to his stimulating treatment; it was given. The patient recovered.

Case 4.—Miss P. æt 34. Laparotomy for tuberculous ovaries, tubes and mesenteric tuberculous abscess—a very desperate and critical case for three weeks after the operation. Septic parotiditis developed very rapidly; for, in three hours, the right gland was swollen to its full limit. The usual quinine and stimulants were resorted to, also lachesis. Recovery, though convalescence was very prolonged.

The relationship between the parotid gland and the female sexual organs is well brought out by Dr. Goodell in his article, "Inflammation of the Parotid Glands Following Operations on the Female Genital Organs," reported in the Gynecological Transactions for 1885. The following excerpts are interesting:

"A close kinship has long been observed between the sexual organs of adults and the cervical salivary glands. Salivations often occur as one of the phenomena of pregnancy. I am now treating, in my private hospital, two ladies for nerve exhaustion. One has excessive salivation just before and during menstruation. In the other, who has a tender and congested left ovary, the left parotid gland does not secrete during menstruation, and the mouth and fauces on that side are dry and painful. The thyroid gland so frequently swells after marriage or during menstruation and pregnancy that Meckel regarded it 'as a repetition of the uterus in the neck,' a sort of cervical womb. Nor was this kinship overlooked by laymen. The ancients recognized conception by the amplitude of the neck, and the Roman matron casts a fillet around the bride's throat before and after the nuptial night, in order to discover whether marriage has been consummated or not. This same sympathetic relation exists in the lower animals, for I have been informed that some horse-breeders measure the necks of their mares before and after they have been covered, to determine whether the intercourse has been a fruitful one.

"The metastasis of mumps to the sexual organs in adults in both sexes is another remarkable evidence of this kinship. In the male the testes become secondarily affected. In the female the breasts, the ovaries, the womb and the labia are the organs in which the sympathetic transference takes place. But the mumps is merely a simple febrile engorgment of the parotid gland and febrile congestion or fluxion in it, and in the sexual organs to which it has been transferred, usually ends in resolution, very rarely, indeed, in suppuration. True it is that mumps is a contagious disease and that a micrococcus has been recently discovered by Ollivier in the saliva, which is eliminated by the kidneys and which possibly in a measure explains the metastasis of this glandular affection to the testicle; but it fails to explain why the female breast and the ovaries are singled out.

"During the latter stages of acute specific fevers it is not uncommon to meet with parotic bubo, a septic inflammation of the parotid gland ending very generally in suppuration. This form of parotiditis is not deemed sympathetic by symptomatic—symptomatic of a poison in the blood which has exploded in the parotid glands. Yet I am not sure that an element of sympathy does not exist even in this form of suppurative parotiditis and that the parotid glands are not preferably attacked when the septic fever starts from lesions in the sexual organs. For instance, prolonged cases of puerperal septicemia are

liable to suppuration of the parotid glands. Of such cases I have seen several in my own practice and in that of other physicians. Of these only one recovered.

"Parotid bubo seems liable to follow ovariotomy whenever sepsis has taken place. Thus in two hundred cases of ovariotomy performed by Schroeder and reported by Morkie, five cases of parotid bubo took place with two deaths. Out of one hundred and fifty-four cases of ovariotomy performed by myself, I have had one of parotid bubo, in which on the ninth day there was a slight rise in temperature and her left parotid gland began to swell. In three or four days it suppurated and I opened it by free incision, yet it burst also into her ear. She died on the thirty-second day.

"This being my third case of pseudo-mumps following the removal of the ovaries, it made a great impression on me. I felt satisfied that it meant something and that the parotiditis was not a mere coincidence but that some mysterious relationship existed between the sexual apparatus and the parotid glands."

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The writer trusts that the narration of some of the clinical experiences with those suffering from septic parotiditis will not be without profit. He believes the sustaining treatment is very necessary in conjunction with the lachesis, the curative remedy, and after an experience with four desperate cases of septic parotiditis thinks he should have confidence in the curative action of Lachesis Trigonocephalus.

1110 Euclid Ave.

The Use of Acriflavine in Dermatology

By W. BUSCH, M. D., D. Nat. Sc., Hamburg, Germany, and EDWARD AHLSWEDE, M. D., Buffalo, N. Y.

IN treating an infectious skin affection which is not merely one symptom of a generalized infectious malady, like syphilis, for instance, the first task is, to eradicate the infectious agents, such as the streptococci, pneumococci, diphtheria bacilli, and so on. For this purpose, only solutions of chemical combinations are suitable that are not made ineffective by serum, lymph, blood or any albuminous substance that may transude. This is one disadvantage peculiar to many of the customary disinfectants. At the same time, the effective therapeutic substance should not be absorbed too readily by the skin which is in a state of "Gel".* If this were to occur, the remedy must not give rise to any untoward toxic changes. Injurious effects are observed after the use of carbolic acid, mercury bichloride and lysol.

A desirable quality of a disinfectant is a marked aggressivity against the principal pathogenic bacteria that are to be combated.

A substance that meets the requirements enumerated is available in acriflavine. This remedy is water-soluble and its effectiveness is not influenced in the least by the presence of albumin. In suitable dilution, it may be injected intravenously, which affords the opportunity to influence pyemic processes favorably in organs that would not be reached in any other way.

While treating cases of impetigo contagiosa and of infected eczema, it was found that moist applications of acriflavine in dilutions of 1:6000, and even of 1:8000, are quite sufficient to cause the affected skin portions to heal. In the case of generalized impetigo, the moist applications present difficulties, as is quite natural, and at times they are impossible. In that event, resort to unguents is appropriate. An acriflavine ointment is available. This ointment is rubbed into the affected skin portions and a little beyond (about 1 1/2 inch). In most cases, one application a day is sufficient to heal the impetiginous patches in the course of a week. In refractory cases, the unguent may be applied twice or even three times a day. The essential feature of the acriflavine action is, that it is quite unirritating to the skin, but exceedingly bactericidal for staphylococci and other germs. In cases of impetigo due to staphylococcus, an outright specific action may be claimed.

However, the good results of acriflavine treatment depend not only upon the points mentioned, but also on the fact that the regeneration of the epithelium is stimulated. This peculiarity is common to acriflavine and scarlet red, but the irritation which occasionally follows the application of scarlet red

*Gel: A colloid which is firm in consistency, though not containing much liquid. A colloid in a gelatinous form.—Dorland.

is not observed after acriflavine. In order to promote the epithelializing action, we practice irradiation with red-light or with Mebolith light. It is to be emphasized, however, that prompt healing takes place without any additional therapy.

A further characteristic of acriflavine, which is therapeutically useful, is its marked astringent action and its tendency to limit exudation. This "drying" effect of acriflavine is particularly noticeable in weeping eczema (1). (2). Cases of eczema showing marked secretion soon lose the serous exudate which greatly interferes with the healing, and then improve rapidly.

The same result was observed by us in treating crural ulcers. In these cases, the prevention or the removal of pyogenic infection is essential. We advocate, in place of the customary aluminum acetate, moist applications with acriflavine solution. After the first distressing reaction has passed and the ulcer is clean, treatment with acriflavine unguent is to be initiated. For this purpose, we employ ointments made up with anhydrous lanolin to which a suitable quantity of watery solution of acriflavine is added. This method has been found more useful than the addition of acriflavine in substance. The following formula is suggested:

℞ Solution, acriflavine (1:500).....40.00 Gm.
(About 1¼ fl. oz.)
Lanolin anhydrous .....40.00 Gm.
Vaselin flavum .....20.00 Gm.

This unguent may, of course, be modified as desired, but it is hardly appropriate to go below a strength of 1:100 in the solution.

Such an ointment is convenient especially for the general practitioner in remote districts where drug stores are not conveniently near. The acriflavine solution keeps for a long time, as do also lanolin and vaseline. In consequence, an ointment in any desired strength can be prepared quickly. The color is not very objectionable; in fact, it is desirable on greatly inflammatory lesions, as it covers the intense red discoloration.

With this ointment, even obstinate ulcers can be made to heal over. If it is desired to employ a paste, it is merely necessary to add the requisite quantity of Venetian talcum; about 5.0 parts of talcum to 95.0 of ointment. There is this advantage in the use of an ointment, which does not exist in the case of powders or solutions, that the dosage can be regulated minutely.

Alcoholic solutions may be thought of when it is desired to apply the acriflavine in the form of very fine powder. The alcohol evaporates rapidly, leaving a layer of finely distributed acriflavine. This application of alcoholic acriflavine solution is suitable in all cases of eczema in which otherwise alcoholic mixtures are ordered that require shaking. In the after-treatment of weeping eczema, especially, painting with an alcoholic acriflavine solution is useful.

Ebel emphasizes the disinfecting and epithelializing action of acriflavine but doubts the healing effects of the remedy in eczema. Still, cases of this trouble that are infectious, or the etiology of which can not be determined, may be made to heal, with the aid of this remedy, if the unguent suggested in the foregoing is employed in steadily decreasing concentration while increasing quantities of a mild tar preparation, of ichthyol, etc., are added.

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Surgical Seminar

Conducted by GUSTAVUS M. BLECH

The Seminar Again

THE response to my request for an expression of interest in the Seminar has been gratifying as to quality and very disappointing as to quantity.

I repeat, for the last time, my request that every reader interested in the Seminar and desiring to see it continued send me his name with or without comment.

I can make no plans for the future unless I know what backing I have, and no publisher will pay any attention to an editor's demand for additional outlay unless he can prove that there is a demand for the particular feature.

If Sam Jones of Helena, Ark., thinks: "Oh, there are thousands of others who send in their names, so why bother," Sam Jones may wake up some morning to find out that the Seminar has been abandoned. I have no intention to devote many hours of my time working out problems and perhaps expanding the work sufficiently to create a new magazine on a mere speculation, and the tendency seems to be that I can guess the number of supporters any move of the sort alluded to will have. All I ask is a few lines stating your interest and your name and address. If Sam Jones does not write, that means to me that he does not care for the work. I have asked for a courtesy from my readers. I actually want to know how many of them there are, and I feel a post card is not too great a burden, considering how much of good will I have put into the work.

Surgical Exercise No. 3

Recapitulation.—This exercise was published in the August issue and referred to the following situation. An individual is operated on for chronic or recurrent appendicitis. There has been a previous operation done for this malady, apparently unsuccessfully.

Knowing that the appendix has not been removed, you decide to reoperate and on exposing the cecum, which is not adherent, no trace of an appendix can be seen.

The question presents itself, what is to be done under a condition as described?

Discussion by Gen. Geo. Acheson, Kingston, N. B., Canada

This case presents a very interesting condition. If you, after careful search, could find no evidence of an appendix, and nothing visible of anything resembling an appendix, I would be inclined to say that, in this patient, it was congenitally absent. If it had sloughed away, as suggested by the first physician, there would assuredly be some evident cicatrix at the site of its attachment to the bowel, or some sign of a former inflammatory process in the cecal region.

If exploration disclosed no pathological state in the abdomen, such as oophoritis, salpingitis, cholangitis, biliary calculus, or peritoneal tuberculosis, or showed no sign of extraperitoneal trouble, such as mobile kidney, calculus in kidney or ureter, or spinal caries, I would close the incision, and await further developments.

Discussion by Dr. E. C. Junger, Soldier, Iowa

It seems to me very plain logic that, when no appendix can be found, after a thorough search, I could not possibly remove one.

I have assisted a brother practitioner on one occasion who, in absolutely good faith, amputated an epiploic appendix from the transverse colon, and if there was a real appendix present at that time, it remained very nicely undisturbed.

Likewise I have a personal experience where a certain surgeon had operated on a young woman for the relief of pain in the right lower quadrant and had removed her appendix. When she came to me later and continued to complain of the very same pain in the right lower quadrant, I made up my mind that there was something left undone and I decided to see for myself. Laparotomy revealed a densely adherent right ovary pathologically so changed by inflammatory and degenerative processes that attempt at conservative surgery would have failed even though I am strongly inclined to conservatism. I there-

fore decided on oophorectomy which was done with the result that the patient has been in good health ever since.

The reason I submit the above is not to throw doubt on your diagnostic ability but to point out, in a general way, that often the removal of an appendix does not remove the disease which is the actual cause of sending the patient to the hospital; that is, the appendix is involved secondarily only.

Then again, the thought suggests itself that maybe the lady in question is so highly developed from the standpoint of evolution that she has actually outgrown the period of the useless appendage. If so, Dr. Blech, I hope you can report that she has married and has produced children who will never suffer from appendicitis because they have no such appendage.

Discussion by Dr. E. N. Ritter, Williamsport, Pa.

In reply to Surgical exercise No. 3, I will answer by relating two cases.

Case No. 1. Mrs. S. Age 27, weight 97 lbs.; married, one child, 2 years of age; very nervous, constipated, "distress" throughout the gastrointestinal tract. Many kinds of foods causing more or less distress after eating. Often felt uncomfortable after partaking of light and easily digested food. When 14 years of age she had acute suppurative appendicitis. Abdomen was opened and drained but the appendix was not removed. She came under my care Mar. 19, 1921, with the above symptoms. I treated her for nearly three months with frequent exacerbations of her nervous and gastrointestinal troubles. An operation was advised for the removal of the appendix.

June 7, 1921, I opened the abdomen, found a perfectly clean and apparently normal cecum with no appendix in sight; even on palpation of cecum nothing abnormal could be detected. I remarked to my assistants, as I exhibited the cecum, to observe what a wonderful and perfect operation nature had performed. Right ovary was removed, as it was very large and cystic. All other abdominal organs were examined and found negative.

Patient made a very nice recovery and left the hospital in two weeks. The gastrointestinal trouble was only slightly ameliorated and she still continued to be careful of her diet. Did not increase in weight and remained decidedly nervous. In July of the following year, she was suddenly taken ill with a temperature of 102.5°, pulse 112 and a sausage-shaped tumor in the right inguinal region. Intussusception was excluded by the X-ray.

July 31, 1922, the abdomen was again opened, found the walls of the cecum very thick and slightly discolored. In removing this mass, I removed eight inches of intestine to satisfy my mind that, if malignancy were present, I had removed a sufficient amount of the intestinal tract beyond the diseased area. Made an end to side anastomosis. On resecting the enlarged cecum, found a suppurative appendix imbedded in an inflammatory mass, making the cecum wall more than one inch in thickness. The appendix, when dissected from this inflammatory mass, appeared perfectly normal except that it contained pus in its interior.

The patient was discharged from the hospital Aug. 19, 1922. Convalescence was slow but she showed a gradual improvement in many ways. A few months later she began to gain in weight and was able to digest nearly all kinds of food.

Case No. 2. May 21, 1923; Mr. C., age 77. Temperature normal; pulse 56; tongue heavily coated; vomiting. On palpation, tenderness over whole abdomen, disappearing in a few days except in the right inguinal region. Slow convalescence. Appetite always finicky or very much perverted. Gave a history of having a very severe attack of peritonitis, about 35 years previous.

Called again May 12, 1924. Temperature normal; pulse 50; tongue heavily coated; nauseated and vomited occasionally.

On palpation elicited tenderness in the epigastric and right inguinal regions. On one of my visits I stated, "I would rather do an appendectomy than to treat you medically." On account of his age, I did not urge an operation but, to my surprise, he consented to the operation which was performed May 19, 1924. On opening the abdomen, the cecum was found to be perfectly smooth and no appendix visible.

Recalled the above case knowing that this patient had never had an operation.

The cecum and ileum were brought into full view. Then I began carefully dissecting the peritoneum at the approximate appendiceal location. I saw a tissue which resembled the appendix. I then passed a dull probe between appendix and cecum to the peritoneum on the opposite side. In so doing, I ruptured the appendix which contained a clear fluid resembling water. The appendix was carefully dis-

sected from the cecum. It was about 2¼ inches long and ½ inch in diameter.

He made a good recovery and has a more nearly normal appetite. General health has also improved.

Editorial Comment

When a case presents itself that is somewhat different from the every-day routine, and when that particular case happens to be rare or so complicated that it leads to erroneous diagnosis and treatment, such a case is worthy of thorough study from a seminaristic point of view, because it will enable the reader to be on his guard in the future.

Opening the abdomen for what has been diagnosed as appendicitis may prove, in nine out of ten cases, a very simple matter. After incision of the peritoneum, the cecum is at once easily recognized and, by a little manipulation, the inflamed, kinked, adherent or free appendix presents itself to view without any trouble and the operation can be terminated without difficulty.

It is not infrequently the case that, when the appendix presents itself, it has the most surprising shapes and forms, not at all resembling the shape of a worm which earned for the little trouble-maker the term: Appendix vermiformis. If my memory serves me right, I discussed such a case in the early issues of the Seminar (as I write this, I have no file handy), pertaining to that of the son of a physician who has gone through repeated attacks, for which he had been drained. When another attack made operation necessary, I opened the abdomen and, after dissecting my way through numerous paper-sheet-like adhesions, freed the cecum and found, where the appendix should have been, a thick triangular "knoll", which, however, was easily recognized and is as easily explainable through the repeated attacks. Even this little triangular bit of tissue, when dissected open, showed that it was the thickened and shriveled appendix, so that there could not have been left a suggestion that I had removed a Meckels diverticulum, that is to say, that I did not have the cecum between my fingers. I think that even a tyro would not make such a mistake; and, while I was then a very young man, I had done enough work to qualify.

Now it will astonish many to hear that competent surgeons, yes, some with national reputations, have occasionally had the dickens of a time locating the appendix. This may have no direct bearing on the question at issue, but it comes within that category, since whenever an appendix is not found there is something extraordinary wrong somewhere, my enthusiastic friend Dr. Junger being a couple of millions of years too young for that period in which the evolutionary process will have rid mankind of the appendix.

Let me quote Sonnenburg to illustrate just how difficult an appendectomy may become under certain conditions:

"Miss B. of Samara, Russia, was operated on early in June, 1902. The patient had been operated on three times before, once for abscess and twice for closure of fistula, the acute attack having occurred two years ago.

"The healing of the fistula had been attempted in vain, for after a temporary closure it reopened again and again. We assumed as the cause of this failure the presence of the appendix. On operation the appendix is found adherent to the peripheral end of the scar, bound down by numerous adhesions, and there emptying its secretion. The central part of the appendix had been entirely separated from the cecum by constriction, and had cicatrized down to the fistula, so that the appendix, well nourished by a broad mesentery, continued to live as an isolated piece of intestine in the abdomen, emptying from time to time its contents through the fistula. A fecal concretion was found in the appendix. The appendix was removed after ligature of the broad mesentery and the scar was excised. Complete recovery."

If I should pause here to take up the difficulties of locating an appendix, I might as well sit down and write a book. We all know that the appendix is encountered in every inconceivable position, retroperitoneally, adherent to almost any abdominal viscus and even to the vertebrae; but, when such conditions are encountered, difficult as they may appear even to trained and experienced abdominal surgeons, there is something found that leads to a recognition of the situation. At the worst, the original abdominal incision has to be enlarged longitudinally, and, if that does not prove sufficient, to expose the field to view by adding a cross or T-incision.

I am even willing to concede the fact that absolutely nothing resembling an appendix has been encountered by competent surgeons. I find such reports in the literature; and, as the skill and knowledge of the reporters have been of the highest, there remains but to accept their statements as facts. But, and let

us spell this BUT with capitals, in all such cases, the local evidence of a past gangrenous appendicitis is so palpable even to one not specially trained in abdominal pathology that one can readily recognize that some terribly destructive process had taken place some time previously. It is a good deal like a layman visiting a battlefield before the troops have had time to remove the dead and the debris. You may still find abscesses hidden in scar tissue and you may recognize, at least under certain conditions, the place where the appendix had been attached to the cecum.

In the exercise which I submitted, I was bringing out the fact that the cecum was freely movable, that the bowel could be rotated in any desired direction, that adnexa and gall-bladder could be examined; yet no trace of an appendix was found.

Had there preceded a gangrenous appendix, there would have been the ineffaceable evidence of a battle that had raged furiously. I would have been unable to dislocate the cecum because there would have been numerous scars and adhesions holding the bowel down. Then, the situation, to me at least, would have been extremely difficult. Whether or not I would have attempted to mobilize the cecum would have depended on conditions as they were found, e. g., general condition of the patient, extent of the adhesions and their depth, whether it would have become possible to dislodge the bowel without stripping or injuring the serosa and so on. But, fortunately, I found no such complications. To me the picture was no different from any of the numerous forms of chronic appendicitis I had previously operated on, except that the worm was not visible. I said to myself that there had been no sloughing and, although I did not then know my friend from Iowa, I know that nature had not played favorite with that or any other woman to the extent of not burdening her with the useless appendix—useless as far as we know.

Then I said, if it is not off the cecum it is on the cecum and I palpated and palpated and that, too, left me somewhat in the dark. Finally, by most careful search, I detected a bit of thickening about where one would look for the appendiceal attachment, rather roundish to the feel, and I said, it is this or nowhere, and I began tremblingly and most carefully to dissect longitudinally and upward through the serosa of the cecum. To my great joy and satisfaction, a cord-like structure, imbedded in the cecal wall or perhaps on top of it, came away and when seven inches had been dissected out, the cord tapered down to a point. It was the longest and thinnest appendix of my career, and I have since seen no similar one.

When Dr. Junger next calls on me I shall be glad to introduce him to the lady. She is the wife of a public accountant, a patient of Dr. Kern, the endocrinologist, who last year had me operate on the husband for acute appendicitis. As this operation came out all right, I hope no one will call Dr. Kern an endocriminologist.

The lady has one child and, if I live long enough, we may yet learn whether surgery has any influence on evolution.

It is palpable from what has been said that Dr. Ritter has had practically the same experience as I have, so that his cases come as a very timely contribution. As I have had little time in the past few weeks, I have been unable to write individual letters and, therefore, embrace the opportunity to express my extreme gratification to Dr. Ritter for his entry into our little family. I have, of course, a number of other contributions, some of which are very interesting; but, as Gen. Acheson has ably covered the field, I would only publish repetitions.

Again I desire to say to certain contributors that they need have no fear in sending me their contributions. True, not all have the ability to write classic English, but if there is anybody charging me with that offense I am going to sue him for slander. I write as I feel and think, and that is all there is to it. With reference to contributions, some are not in need of revision; others, again, occasionally need a little change in diction. Well, that is just exactly what I am here for and if correspondents will only write me as they feel, directly to my office, they can rest assured that I will either use the substance or use it for criticism without publication of the name, or else I will destroy the "evidence". This is not a class and no one is expected to qualify for a grade or degree. It is a seminar, which virtually means that we come together to "fight it out." We may be all wrong and I doubt not but what some quiet colleague, hailing from any odd corner of our little planet, may be able to set us all right; but, whether right or wrong, we are trying to be right and thereby, that is by each presenting his views, we sharpen our diagnostic acumen, enrich our

therapeutic armamentarium and generally develop logical thinking. What more can one wish from pen and ink?

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In lieu of a problem I submit for discussion the following case.

Case Submitted by Dr. A. Paul Jones, Camden, Ala.

H. S., white, male, æt. 30. Previous history: stomach trouble for years. Repeated lavage of the stomach, diet and medication failed to give him relief, his physician looking upon him as a "grunter." Present history: The patient ate a large quantity of watermelon on a Saturday, last August, some time during the early part of the day. That very afternoon, he began to complain of pain in the abdomen and took a few tablespoonfuls of salts. At midnight he was seen by a physician, who administered morphine for the relief of the pain which was localized in the umbilical region. The opiate gave him some relief so that the patient rested fairly well all day, in spite of the fact that the upper abdomen swelled steadily. Enemata were administered for obstipation or obstruction, but only the first enema brought out some water-melon. I saw the patient in consultation with the attending physician Sunday at six p. m.; that is to say, about thirty hours after the onset of the present trouble.

His pulse was 96 and feeble; the voice, however, was relatively strong. The abdomen was enormously distended—"strutted"—but the patient neither complained of pain, nor was there tenderness on pressure anywhere. There was neither nausea nor vomiting, but the temperature was slightly subnormal, 98 degrees Fahrenheit. I made a diagnosis of intestinal obstruction, probably due to intussusception, and urged immediate operation. When the patient was sent to the hospital an hour after the consultation, he died en route.

The points that suggest themselves to me as meriting careful discussion are:

1. Neither the family physician nor I were aware that death was so near. From this it can be realized that the patient did not make an impression that he was in extremis.

2. My diagnosis of intestinal obstruction was based on the short onset, the abdominal distention, the feeble pulse and the failure of the enemata to empty the intestine. The absence of vomiting, nausea and pain remains unexplained.

3. The query suggests itself whether a ruptured appendix or a perforated ulcer would have given the clinical picture presented.

Editorial Note

This case is really interesting. I have already written Dr. Jones, giving my opinion; but I feel that here is an opportunity for many of the readers to pitch in, as it were. Even if a hundred participate, I shall gladly give resumés and digest the whole by comment. It is, at the same time, regrettable that no postmortem was held. However, I am confident we can reach the truth without a pathologic report—by studying this clinical evidence with care.

Good Medicine

Let us learn as we go, but not forget what we know
Conducted by GEORGE H. CANDLER

"VOX POPULI, VOX DEI"—YES?

EVEN as in the time of Caesar, "the peepul"—God bless 'em, for nobody else will—loved to hear the sound of their own voices. They demand "self-expression" and they express noise energetically at frequent intervals. Especially do they here omit vociferosity every fourth year. They do not only generate sound but they also absorb a variety of it which must give them mental indigestion of the most acute form. From the *chronic* variety they suffer uncomplainingly. Were it not so, the energetic mouth-pieces who talk themselves into power (being *of* the people) could not *do* the people generally for the particular benefit of themselves and a few others (here comes old Special Privilege) so satisfactorily and with such an adherence to the "rotation of crops" theory, that they compel one's admiration.

Basing our argument upon the open statements of the Sphinx-like Cal (*not* an abbreviation of caliope, indeed no!), the rebellious Robert, the debonair Davis and Bill's blood-brother, "this here country of ourn is in the heck of a shape." Each of these gigantic souls has a point of view which differs altogether from the other would-be saviors of the peepul—privileged or common—but they all ("Hell-an-Maria" included) tell us in hectic periods that if *something* isn't done by *somebody* we're due to go on the rocks and get our feet (socks and all) dangerously wet. Indeed, Bob says we're wet up to our tummies already, and Davis frankly calls attention to the fact that the old water-logged Republican ship is ready to sink—or, perhaps, strand on Teapot Dome, even as Noah's old ark stuck on the extreme top of Mount Ararat. The spokesmen for the "glorious old party of Jackson, Jefferson, Cleveland and Woodrow Wilson," having had considerable trouble in smoothing the feathers of their own peculiar peepul, are now "taking it out" with a vengeance on the "Ins" who, if we on the fence may dare to think outside party lines, haven't *quite* done all that they might have done (some things escaped) since they moved in to Washington, D. C. "The Democracy still makes war", Davis assured fifteen thousand perspiring and exalted peepul "back of the yards" in our fair city the other night and the way those peepul lifted up their voices and kept them lifted would convince anyone—even one of the morons, who scientists say comprise eighty-seven percent of the present population of this, our Fatherland—that Hell and Maria is indeed about to break loose. These whooping warriors were fed generously upon the good old diet of "personal determination," "trial by jury," "equality of man," "freedom of speech," "illegal search and seizure" (oh! my brothers, how those dyed-in-the-wool dimmicrats shouted and tossed their chapeaux high at those promising words) and made to realize that the wicked usurpers of the chairs of the mighty would, if given even half a chance in the coming four years, roast everyone unconnected with the G. O. P. to such a crisp that there wouldn't be even any drippings left to butter the waiting bread with. For we wot the bread is always waiting—to get something spread on it when the people get tired of cake!

The Party in Power Proves Piggish

The cake-eaters this time, Davis and Bryan (to say nothing of Robert *le diable*) point out, have been regular gluttons; not only have they pulled out all the plums they could masticate but they have spilled the tea and poured out the oil and stolen the sugar with the most distressing disregard for the decencies in such cases commonly observed. They have even shown a desire not to leave a little for "seed." Of course, they have been particularly atrocious to the World's War Veterans, the Farmers and the Working-man. He, poor soul, is struggling along through long and bitter eight-hour days with nothing but a Hupmobile, Buick or vulgar Henry to convey him

to and from the scene of his labors and nothing but Community plate and American porcelain to eat with (or off) when he gets home to his wretched "steam-heated with tiled-bath" apartment. To comfort him there, after his arduous labor, he has but a player-piano, "superiodine" radio set and a phonograph. Nothing more, believe muh! His clothes are of the $65 "we-make-'em fit" variety and his underwear, ye gods! not silk—he has to slave and skimp to keep that on the wife and daughters.

There are no longer the good old times when Bridget went out with tin dollars on Sathurday noight and could get ivrything the family needed to kape 'em well fed and warrum till the ould man dhrew his next pay check. No, indeed! Evil days are upon us and tin dollars will only just buy a pair of slippers for Marie Eileen (her mother was Mary Ellen and a "good crathur") this leaving only about fifty bucks to spend on church contributions, charity, education, sustenance (physical), entertainment and the installment man. And, by the Saints, which party was in power when *that* divil was let loose? Death and even the tax-collector *may* miss you for a long time, in these days of push and pull, but the installment man never fails to be there at the psychological moment, i.e., when you have the money but want very much to buy something else with it. Then, oh! my brethren, the voice of the people rises in long drawn-out and anguished wails. Especially may the wail be heard—if you are clairvoyant—at the ends of weeks and around the first and fifteenth of the month. The moon then is in its worst quarter for everyone but the thrice accursed collector of tythes. If the Republicans were responsible for the installment visitor, then the Party which talks so much about the equality of man and his right to pursue happiness should certainly be wafted in on an overwhelming tide of popular approval. But, peradventure, the Democrats are responsible in some way for this great national affliction? If so, why not avoid the water-logged G. O. P. ship and the Demosthenic Democracy and cast a vote and raise a shout for the Great Liberator, LaFollette?

Bob or Bust!

There, my fellow citizens, is a man to shout over! *There* is a man who can even say more in one hour than Dawes—the"vocalizing member" of the Republican team. If Bouncing Bob can't find a way to make the "vested interests" pay twice as much, twice as often and at the same time keep the installment man from coming around except when cordially invited, I don't know who can. He's a Democrat, too, but one in full pursuit of happiness (a quite common disorder by the way) and if you want to be really happy also, raise your voice—the voice of the people—for him and be quite sure (Bob will tell you so with a tear in one eye) that it will then be *vox dei*—the decree of the Almighty.

If you don't believe Robert—and he has a convincing way with him and moreover swings a wicked left hook—as various corporations have discovered when they tried to flirt around Wisconsin's skirts—you'll just have to swallow the Dome, the late Congress and other quite unpalatable things and shout "Cal and Dawes!" or drop them too and absorb into your system an abiding faith in and love for Davis and Bill's brother. Something or someone has to be done and you're "it."

YOU—you know it!—carefully, thoughtfully and prayerfully selected these men to tell you first what it is all about and then just how you are to do it and your voice is, you have been assured, as the "voice of God" when it comes to saying which of the aggregations of acumen shall receive salary (and other) vouchers from the treasurer of these United States for the next four rounds. You believe that firmly, of course, and repeat at least once a year, *"Government of the people, by the people, for the people, shall never perish from the earth."* Sonorously you spout the sentence, luxuriously you roll the syllables under your tongue and then fatuously let some bunch of hyenas walk off with your bone; with the meat still left on it, too! You read what you are wanted to read, and studiously avoid the "rags" which present the other side; you go and hear the men who tell you what you like to hear and yell like Comanche Indians at flap-doodle which would be laughed at in a high-school debating society. You parade around and tell everyone that you're a good Democrat or Republican or Independent Progressive and at last are herded to the polls and cast your ballots as you have been trained to do—and those who manipulate the wires and watch know almost to a hundred votes what will happen in any electoral district. They also know that a very large percentage of people who have brains haven't the good common sense necessary to overcome their reasoning powers and so don't vote at all.

Which, of course, is wrong, for effort in the right direction, even if futile, is commendable.

The Voice of the Politician

Anyhow, really you know, *you* haven't much to do with the making of a president—or governing yourself. Conditions and accident have a whole lot more influence. If circumstances—as circumstances have a habit of doing—change so that the people throughout a large portion of the land feel uneasy or nonprosperous the "out" party can pretty surely oust the "ins." If, on the contrary, the Fates have been kindly for four years and everyone has a little more—or not *much* less—than he feels he deserves, then the "ins" will be put in again without much protest from the people. If governments can but keep the masses fed and amused, they need have no fear of revolt. That is, of an effective kind.

As a matter of fact, this country has progressed and prospered exceedingly under the rule of both the old parties. It has also suffered unspeakable things at their several hands; wholly incompetent men have held high office under *both* flags and it is a question whether it would be possible in these days to put any body of men in power who would not in some way at some time work along entirely wrong lines. The vital point is: *Are* there rascals in and, if we turn (as we like to think we do) these rascals out, will the fellows clamoring to get in prove much better? Changes are ever expensive and always the peepul pay the bill. Again, God bless the peepul—for, as herebefore stated, nobody else has any fixed intention of doing so! "The public be damned" is written (in very small type) in the creed of every Master Politician. It is a good thing to remember that *before* election!

The tendency at this moment is unquestionably towards Centralization. Great corporations, naturally supporting and having the support of the party in power, control cummunication and can and do communicate just what it is desirable to communicate to the ears of millions of people—half of whom believe nearly anything they hear (especially if it smack of the official) at a day's notice and at the same time. These corporations are in intimate touch with the great broadcasting stations and today American sentiment—to say nothing of fashions in other directions—is moulded to an almost unbelievable extent by the radio. Nothing perhaps ever made such a profound impression upon an entire people as General Pershing's farewell conversations with his corps' Generals across the breadth of the continent. Coolidge's, Dawes', Davis' and LaFollette's speeches—masterpieces of oratory or "flap-doodle," as you may prefer to consider any one or all of them—were listened to by hundreds of thousands of individuals serenely ensconced in their own homes. Each man (we might safely add, and woman) presumably has at heart some grievance, some thought, gleaned Heaven knows where, perhaps even inherited, that things as they are are never what they should be (which is unquestionably true) and the speech which stirred him most or seemed to compass that wrong and point out a remedy, probably won his support to the platform of a party, the real *motif* of which he does not now or ever will comprehend. Continue and refine this method and it will be quite possible for those in power and controlling the new means of communication—as always they have controlled a large portion of the Press—to so mould and direct the mind of the people that they will cease to do any active thinking for themselves. Possibly, that way lies Utopia—probably something else. If supermen, or even really *good* men, could alone be put in absolute power, the little men will be better off so governed than they would be if they tried to govern themselves. Quite often they make a mess of that. Also, unfortunately, supermen are not often engaged actively in politics.

Utopia Seems Still Far Off

Taking things as they really are, may we not safely consider that *vox populi, vox Dei* is merely one of those lies the world has learned to love and that these United States of America will, just because of the wonderful leaven it contains, go right along quite regardless of whether the Democrats, the Republicans or the Red Roberts occupy the capitol? One party may right some very glaring wrongs and perpetrate others; the other may hand over some of our natural resources and still devise means by which "we, the peepul," may have eastern drapes and Ormulu clocks in great abundance and the third may raise "Hell and Maria" generally and yet, through such Hell, work out a plan whereby every last mother's son of us may eat Baltimore oysters on the half shell as soon as September comes and the honest farmer be able to sell every apple and potato he raises to the horny-

handed city son of toil for more gelt than he ever dreamed of possessing. When that glad day comes, the horny-handed urban son will soak the honest farmer swat for swat and everything the farmer doesn't raise himself but likes to have, will go up nine hundred and ninety-nine per centum! If the horny-handed brother doesn't raise the ante the "idle rich" will see to the matter.

Then, verily, shall Peace Plenty and promiscuous profanity descend upon us and we shall realize that even though the Voice of the People is not quite the Voice of God it is something to listen to—preferably with earmuffs on.

In other words, my brothers, let us not be led astray; neither let us be stampeded like sheep by politicians seeking office. We know —or can easily know if we will take the trouble to investigate—the manifold beauties and multitudinous moth-holes in our existent form of Government. What we *have*, being good citizens, we *stand by* and, if we haven't a right to roar every four years and vote as we please and with great abandon, I'd like to know *why*. HOW to bring about the wonderful things we'd like to see accomplished is another matter. It is reasonably safe to say that none of the Pennant Bearers we see dashing about and sounding the general alarm will produce the millenium. But, for that matter, none of them can soak us very much more than we have been soaked. For which let us give thanks.

L'envoi: "You pays your money and you takes your choice." Yes?

OUR DUTY TO OUR FLAG

LESS hate and greed
Is what we need
And more of service true;
More men to love
The flag above
And keep it first in view.

LESS boasts and brag
About the flag,
More faith in what it means;
More heads erect,
More self-respect,
Less talk of war machines.

THE time to fight
To keep it bright
Is not along the way,
Nor 'cross the foam,
But here at home
Within ourselves—today.

'TIS we must love
That flag above
With all our might and main;
For from our hands,
Not distant lands,
Shall come dishonor's stain.

IF that flag be
Dishonored, we
Have done it, not the foe;
If it shall fall
We first of all
Shall be to strike a blow.

By EDGAR A. GUEST.

Let's Talk it Over

Conducted by All of Us

Hyoscyamine

HYOSCYAMUS niger, from which hyoscyamine is obtained, is a biennial plant, a native of England, although distributed to some other parts of Europe and America; the crude drug has been used for many years with indifferent results in various ailments.

The active principles of Hyoscyamus were first isolated by Laudenburg in 1880 and it was due to the initiative of Prof. Adolphe Burggraeve that the separation of the hyoscine and hyoscyamine was accomplished.

Merck claims that there is no practical difference between hyoscyamine and atropine, because of the identical chemical formula. Clinical observation, however, has demonstrated that there is a marked physiological and therapeutic variation.

Hyoscyamine has been classed as a narcotic based upon the fact that it relieves pain but experience has demonstrated that the relief from pain, due to spasm, is not simply obtunded, as it is by a narcotic, but by the action of the drug in removing the cause, spasm, and consequently relieving the pain.

The sleep produced by hyoscyamine is like normal sleep and seems to be more the after effect from the relief from suffering; the sleep produced by the narcotic morphine is positively abnormal and anesthetic.

To the mind of the writer, there is a wide difference between hypnosis and narcotism, the subject of the hypnotic being easily aroused and answering questions intelligently with no bad after effects, while the narcotized patient is apparently anesthetized, recovery marked by dull, sluggish movements and a confused mental state.

Hyoscyamine must be classed as the very antipode of morphine, the first dilating the pupil to its full extent while the latter contracts it to a pin point.

It is not necessary to go into the entire physiology of hyoscyamine; it is lengthy and space is limited. The therapeutics and dosage of the drug more properly interest us.

The dose varies from 1/1,000 grain to 1/250 grain and the best results are obtained by absorption by the buccal mucous membrane. Administration, which may be every ten or fifteen minutes to physiological effect, should be stopped when there is marked dilation of the pupil and dryness of the fauces.

Without doubt, that which follows will prove to the satisfaction of every general practitioner, that hyoscyamine should be in every pocket medicine-case as being the most important item for the relief of pain and, if this plan is followed, the hypodermic syringe and morphine will soon be relegated to the surgeon for the prevention of shock after surgical operations—its only legitimate place.

The wide range of usefulness of this drug can hardly be expressed in a magazine article and, if its users would report their various cases, the time would be short in which a book could be written in its praise.

Alienists have used it with success in many forms of mania.

It has been used in tetanus, neuralgias, paralysis agitans, and mercurialism with complete good results.

In all forms of spasm attended with pain, hyoscyamine should be first thought of, not hypodermically, but placed under the tongue and allowed to dissolve in the mouth. Relief appears in a few moments if the proper dose, varying from 1/1,000 to 1/250 grain, has been administered.

Appendicitis, in many instances, has been cured by the use of this drug and a sufficient number of cases has been published to convince anyone but the surgeon who insists "there is no cure but by the knife."

"Dr. Maguire reports several cases of renal colic completely and almost immediately relieved by amorphous hyoscyamine dissolved in water and injected into the bladder."

"Dr. Laura claims perfect results in all forms of circulatory erethism, insanity, cerebralgia, all spasmodic affections, especially of unstriped muscular fiber of organic life, also in chorea, eclampsia and in epileptics."

Dujardin Beaumetz speaks of its being of little use in chorea and as being dangerous in any spasmodic trouble. It is evident that the drug used by Beaumetz was in some manner different from that issued from The Abbott Laboratories, which has a record here as being used in thousands upon thousands of cases without a single untoward report.

I might multiply diseases and the names of those who have treated them, but I want space for my own experience with the drug.

Appendicitis: I treated a case in a young man and Dr. Wm. Belfield was called in consultation. My diagnosis was confirmed and the patient **recovered in seven days.**

I was called, in an emergency, late one night, to attend a lady who was suffering intense pain from what was diagnosed as appendicitis and her medical attendant, who could not be reached, had already decided that she was to go to the hospital for operation on the following morning.

I gave the patient 1/250 grain of hyoscyamine, by the mouth, and in less than thirty minutes all symptoms of appendicitis had disappeared; the lady was not operated upon then or ever. What was it? I said spasm of the gut and not appendicitis.

Hepatic colic: There are so many of these cases in my note books that it would take pages to report them in full. There is not a single instance of failure to give relief.

Gall-stones: The excruciating pain attending the passage of gall-stone was perfectly controlled in two cases by the use of hyoscyamine in the dose of 1/250 grain; both of these patients were treated afterwards with sodium succinate and with good results.

Infantile spasm: A child of ten months was brought to me one evening, about 10 o'clock. The child was unconscious and rigid. Hyoscyamine 1/1000 grain was administered under the tongue and, in ten minutes by the clock, the child was as limp as a wet rag, awake and smiling; before it was taken home, the child was sleeping naturally and remained so during the night; it had no further trouble.

Ovarian and Uterine Colic: In a large number of cases of this trouble that I have treated, the condition has yielded to the dose of 1/1000 grain of the drug and, in many instances, no repetition of the dose was necessary.

In the dysmenorrhea of young girls about the age of puberty, I have found that hyoscyamine can be absolutely depended upon to give relief; often I have sat by the bedside of the sufferer and watched the change of expression from agony to perfect contentment taking place in the ten minutes that the drug was asserting its power over the spasmodically grasped organs.

The form of drug that I have used is the hyoscyamine hydrobromide as made and marketed by The Abbott Laboratories.

I could cite many cases more that have come under my care; but, if I have awakened further interest in this drug, my work will have been accomplished and other patients benefited.

W. H. THACKERAY.

Fowlerton, Texas.

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[Those who are familiar with the principles of active-principle therapeutics need no recommendation of hyoscyamine. It is, as Doctor Thackeray points out, one of the most satisfactory hypnotics, sedatives and antispasmodics in the materia medica.

The writer with others (among them Doctor Thackeray) has for so many years advocated the daily employment of various definitely-acting alkaloids that he has come to assume their general employment when, as a matter of fact, only a comparatively few men employ active principles, other than strychnine, morphine and codeine, extensively. Aconitine, which to the initiate is a most definite and therefore essential remedial agent in all febrile conditions and in the control of high blood-pressure, is still regarded by the average man as "too toxic" for general use. Improperly used, aconitine *is* toxic; correctly given *"in small repeated dose to effect, remedial or physiological,"* it is safer than the coal-tar derivatives so freely dispensed or prescribed and produces results the latter cannot possibly accomplish.

Exactly the same remarks apply to a dozen or more active principles. Those who may be interested enough by Doctor Thackeray's paper to try hyoscyamine might, with infinite advantage, study this drug also and so progress to veratrine, gelseminine, bryonin, brucine, and half a dozen other active principles which, correctly used, produce definite remedial results—not occasionally but with a uniformity which is startling to the man unfamiliar with these arms of precision.—ED.]

OSTEOPATHY AND SOME FRIENDLY WORDS

I read, or rather subscribe to, a number of current medical magazines, as should every physician who is making an honest effort to serve his people. And I want to say that CLINICAL MEDICINE is the most attractively

written and edited of any. The material is composed largely in conversational language which, to a busy man, brings an easily grasped message. It is by far the most readable magazine on my desk.

I am particularly impressed this month with what Dr. G. G. Balcom has to say concerning osteopathy and its less cultured cousin, chiropractic. As he says, "All have been exposed and damned and cussed." But this does not get us anywhere. It seems to me that if the regular physician will learn the arts of osteopathy and chiropractic, he will have automatically solved the problem. There are a few men in Birmingham, near me, who have done this, as a consequence of which their practice and limit of usefulness has improved greatly.

Surely, there must be some virtue in these methods. And, if so, we are behind the times if we do not learn the trick and include it in our armamentarium.

I cannot close without expressing appreciation of the Surgical Seminar. Frankly, I haven't had the nerve, so far, to enter the discussions. But they are extremely interesting. In exercise No. 3, I am interested to know whether the young woman had intussusception of the appendix.

CLAUD O. LAWRENCE.

Calera, Alabama.

IS INSULIN INFLUENCING THE DEATH RATE FROM DIABETES?

In view of the extended use of insulin in the treatment of diabetes, the following survey, made by the Metropolitan Life Insurance Company, and published in its *Statistical Bulletin*, I am sure, will be of intense interest to every reader of our journal. If the results of insulin treatment are producing this profound influence upon our mortality tables, it is of great importance that physicians generally should thoroughly familiarize themselves with this remedy and use it in their practice.

Diabetes is no longer to be considered as belonging exclusively to the realm of specialism. General practitioners must familiarize themselves with insulin, study its method of use, including its dangers, so that they may be prepared to meet emergencies and show their patients the importance of conforming exactly to the dietetic and other requirements necessary for best results. The article follows:

"For a year and a half the death rate from diabetes has been declining, reversing the tendency of the four previous years during which the rate rose uninterruptedly. This change in tendency has been coincident with the increasing use of insulin. At the present time, the rate is falling faster than ever as, apparently, the use of insulin is becoming more general. Certainly, the figures today justify the hope that the two phenomena are connected, even though there is no positive proof, as yet, that the reduction is the direct result of the increased use of this preparation.

"Deaths from diabetes, nevertheless, continue to be reported in large numbers; and it has seemed desirable to analyze the facts for fatal cases, to determine whether they had received the benefits of insulin and, if so, for how long a period before death the treatment was given. Many physicians will be interested to know what part the newer treatment has played in these cases, if any. Possibly such analysis will suggest whether there are types of cases which insulin does not help, although, of course, one would have to be very guarded in drawing so important a conclusion.

"For this purpose, we have analyzed data submitted by physicians who have certified the death certificates in 500 recent cases of diabetes. They give information as to whether the insulin treatment was given, the date of the first treatment and the date of the last treatment; and they also indicate the terminal condition in these cases, and whether there were any complicating or intercurrent diseases.

"The following are the outstanding facts brought out by this very preliminary study:

"1.—Less than one-half (45.4 percent) of these fatal cases received insulin at any time.

"2.—In the cases that received insulin the treatment was of very short duration. In 62 percent of these cases, insulin was used for a period of less than one month.

"3.—The reason for this short duration of treatment was coupled with the late administration of the first treatment. In 31 percent of the cases, the insulin was administered less than one week before death.

"4.—Of the complications in these fatal cases, coma was the most frequent, being certified in 46 percent of the cases. Arteriosclerosis was reported in 24.8 percent. In a large number of the cases, two or more of these complications were present conjointly.

"Insulin apparently was most actively used in cases which were complicated by coma. But apparently in these cases, the administration was already too late. In a series of 58

cases where no other complication than coma was present, 21 were not given a single dose of insulin.

"5.—Insulin was apparently much more commonly used in cases receiving hospitalization than in cases where treatment was given at home.

"6.—Finally, insulin is more extensively used in the larger centers of population than in the rural areas of smaller towns. In the former, about half the cases received insulin, whereas in the rural areas only about one-third received insulin.

From the above, it would appear warranted to conclude that there is no particular type of diabetes which does not justify the use of insulin, but rather that an unsatisfactory result can be largely ascribed to the absence of treatment; or to the very late use of the treatment; or to lack of cooperation or ignorance of the patient, which result in indiscretions with fatal results; or to complications of fatal chronic diseases which, by themselves, are sufficient to cause death.

"Observation is being continued on such cases and a later report will follow."

OBSTACLES AND ADVANTAGES IN INTRAVENOUS THERAPY

After reading your questionnaire relative to intravenous therapy in the September issue of CLINICAL MEDICINE, I wish to express some thoughts that occurred to me concerning this subject.

Among the many channels of administration, remedies via the intravenous route are resorted to the least. Reasons for this are:

1. The number of drugs prepared for intravenous administration is comparatively few.
2. The dosage of these drugs is relatively small.
3. The profession depends solely upon the manufacturer of suitable intravenous products.
4. The development of skillful technic on the part of the busy physician is ofttimes wanting.
5. There is a fear of "needle treatment."

Drugs that have proven entirely satisfactory for intravenous administration are those used in the diseases of the blood, such as anemia, and those used in diseases occurring with the presence of microorganisms in the blood stream, such as syphilis and malaria. These remedies can exert their theraputic influence best because they are placed directly in the blood stream, thereby utilizing the full dosage, and are aimed directly at the trouble.

Recently, the tendency to the administration of remedies by the intravenous route for conditions other than those of the blood is increasing, and favorable results are being reported. With the exception of saline solution used in emergency, the physician uses the product of the manufacturer and is dependent upon him for proper dosage and in the beginning relies on the manufacturer through laboratory tests for the efficacy of the product. Therapy depending solely upon the manufacturer from the standpoint of the patient is expensive. The adaptation of intravenous therapy will be slow in progress because of these facts.

As to the technic of intravenous medication, I would say, in passing, that it is a safe and efficient office procedure when strict aseptic precautions are observed.

The fear of needle treatment exists and, to my mind, will be eradicated as the confidence of the physician in intravenous products is strengthened.

Aside from the specific blood conditions heretofore mentioned, namely, anemia, syphilis and malaria, there is only one other condition, in my experience, that I will mention at this time. For many years rheumatism has been a bugbear of medicine. The origin of rheumatism is still subject to difference of opinion, but is generally conceded to be infectious. The etiology, modes of conveyance, manifestations, special features and symptoms, course and treatment have been the subject of much work throughout the literature. Acute, subacute and chronic rheumatic manifestations are favorably influenced by remedies administered by the intravenous route. There is no doubt in my mind that in time the intravenous route will prove our choice of therapeutic armanentarium in alleviating this condition.

New York City. T. J. RIORDAN.

THE U. S. PHARMACOPŒIA IN CHINESE

The Pharmacopœia of the United States, the legal standard for drugs and medicines under the Federal Food and Drugs Act, has been translated into Chinese, and for the first time in its long history China is now governed by nationally recognized principles in this field, it was announced by the American Pharma-

ceutical Association, which held its annual meeting at Buffalo, N. Y., August 25-30, in association with the allied organizations representing chiefly education and research.

China's turning again to the west for aid in reconstruction means, it is pointed out, not only an extension to the Orient of America's sphere of intellectual influence but also the opening up of markets for United States drugs and medicines.

In recent years, it is said, many American pharmaceutical products have been appearing in Shanghai and other Chinese marts, while physicians, druggists and hospital attendants have been frequently called upon to dispense or prescribe medicines of the western world. "It is hoped," says the association's announcement, "that the United States Pharmacopœia will further extend the influence of western medicine in this rapidly developing country."

E. Fullerton Cook of Philadelphia, chairman of the revision committee of the United States Pharmacopœia, discussed the development of the Pharmacopœia at a meeting of the association's section on historical pharmacy during the Buffalo session.

Standards for whisky and brandy as medicines will be included in the new Pharmacopœia now being revised. Under the national prohibition laws, whisky and brandy are classed as medicines and as such are legally prescribed in many cases of serious illness, but at present no legal standards exist for their purity.

By including standards for whisky and brandy as medicines, in the Pharmacopœia, which is the legal standard for drugs and medicines under the food and drugs act, the machinery of the United States Department of Agriculture and of the Boards of Health and Boards of Pharmacy throughout the country, it is said, is enlisted in protecting the sick against adulterated and poisonous products.

Translation of the Pharmacopœia into Chinese was a response to demands of Chinese physicians and pharmacists, according to a statement of Dr. L. K. Sung of St. John's University, Shanghai, given out by the American Pharmaceutical Association.

"In considering the need of a translation of the Pharmacopœia of the United States into the Chinese language, it is necessary to point out that there are two distinct lines of medical practice in China today—namely, the European and the native," said Dr. Sung, who for two years studied at the Philadelphia College of Pharmacy and Science.

"The former includes all foreign physicians practicing in China and the Chinese physicians who acquire their medical training in America, Europe or those who are graduates of recognized medical schools in China. The rapid increase in number of the western practitioners, with special reference to the English-speaking class, has actually brought about a need for a standard formulary among themselves."

ETHYL ALCOHOL AND DOCTORS

Although I am not a physician, I have been a subscriber and reader of CLINICAL MEDICINE for a number of years, and would like to make a little comment on your editorial in the July number entitled "Ethyl Alcohol and Doctors". I quote: "On the evidence submitted before the Pharmacopœial Revision Committee, alcohol was deleted in 1910 and, since then, no further evidence has been offered to suggest a mistake, treatment has not been more difficult nor has the mortality increased as a result".

How is it possible to know mortality has not increased? It is common knowledge that, before prohibition, nearly every family ("dry or not") always kept a little whisky or gin on hand for emergency.

In the winter time thousands of people would go home with wet feet and a chill, and in thousands of cases the individual would put his feet into a hot mustard bath and take a hot lemonade with a good dose of whisky, and be all right the next day.

How is it possible to know how many thousands of cases of pneumonia this common practice aborted and how many lives it saved?

This does not dispute the idea that if in each case a physician had been called immediately he could not have handled the case with something other than whisky. But, probably, not five percent of such cases called the doctor.

HENRY ELWELL.

Boston, Mass.

—

[In answering your appreciated comment on an editorial in our July issue "Ethyl Alcohol and Doctors", we agree with you that preventive medicine is in its infancy. We agree also that we shall never be able to say definitely just how many pneumonias have been aborted or prevented by the use of whisky.

It is generally conceded that the records of our Health Departments are of value and it would be evident, right here, whether the de-

creased use of alcohol has increased the mortality records.

If any mortality increase is shown, it is reasonable to expect a marked reaction from our doctors. No such criticism is at hand.

In presenting the following records, it is fair to remember the greater use of "moonshine" as a beverage—not for preventive medicine. This means more frequent use and in larger quantity than the reasonable *medicinal dose.*

The Health Department of Boston, Massachusetts, has no data of value in this connection.

The City of New Orleans, Louisiana, reports as follows on the number of deaths from alcoholism:

1915	10	1920	7
1916	20	1921	7
1917	17	1922	14
1918	7	1923	16
1919	4	1924 to date	7

It is interesting to compare their totals in 5-year periods as follows:

1902-1906	154
1907-1911	171
1914-1918	75
1919-1923	48

The report from the Health Department of the City of Chicago is as follows:

	Total deaths from alcoholism acute and chronic	*Cirrhosis of the Liver*
1915	165	70
1916	245	26
1917	187	24
1918	63	10
1919	62	5
1920	46	0
1921	99	35
1922	111	39
1923	101	82

For the year 1920, there were no deaths reported due to alcoholic poisoning, but in 1921 there were 3; in 1922, 42; and in 1923, 80.

New York City reports as follows:

	Alcoholism	*Wood Alcohol*	*Ethyl Alcohol Poisoning*
1910	621	6	8
1911	635	6	2
1912	570	4	3
1913	656	3	2
1914	660	5	0
1915	562	1	2
1916	687	2	1
1917	560	8	2
1918	252	4	1
1919	176	38	1
1920	98	29	0
1921	119	14	8
1922	274	15	8
1923	429	6	0

In this connection you will be interested in the following from *Successful Farming,* July 1924:

Dry Facts

"As long as the wets are spreading their propaganda of falsehoods, it will be necessary to keep stating facts whether you like it or not. You owe it to yourselves to keep posted, and to keep your children posted on the effects of the Eighteenth amendment.

"While the country was still in the grip of the depressed business, the astonishing news went out that the United States Steel Corporation had voluntarily raised the wages of 140,000 of their workmen forty percent. Other industries and particularly the railroads were asking for a reduction of wages. Why then the increase to steel workers?

"This great corporation made accurate investigation of its production costs and found that prohibition had increased the working efficiency of steel workers twenty-seven percent. Get that fixed in mind. Sobriety increased efficiency of workmen twenty-seven percent, and these workers were rewarded with an increased wage of forty percent.

"We realize as you will the distinct differences in conditions before October, 1919, and after; and, should you have any evidence to refute or support the claims presented, they will be given every consideration."—F. B. K.]

INTERESTING CORRESPONDENCE

The following clipping from an article which appeared in *Collier's,* and reply, together with the comment thereon of Doctor Drowne, are so much to the point that we are printing it in our journal.

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To the Editor of *Collier's*:

I am not a high-school graduate nor have I a common-school education—just a dub, but I enjoy your editorials, at least on the quack doctors. Well, how about the doctors all around the country that are graduates of medical schools of repute and good standing but know nothing about medicine at all and could not tell if a man had smallpox or malaria and would not know how to set a bone but are willing to take a shot at it anyway?

H. C. Dorr.

Aurora, Nebr.

—

Mr. Dorr has put his finger on the edge of a reason why exposures and denunciations of quacks, however, thoroughgoing, do not cover the medical aspect of public health. Bad, though the quacks are, the legitimate certified medical profession is by no means unexceptionally above reproach. — *Collier's* Aug. 23.

—

Dr. Frederick P. Drowne sent the following letter to *Collier's* by way of comment upon the preceding:

To the Editor of *Collier's*:

I note with some surprise in "The Horizon" section (*Collier's,* Aug. 23), the editorial comment on Mr. H. G. Dorr's letter, under the

caption "There Are Doctors and Doctors."

As far as Mr. Dorr's conclusions are concerned, no comment seems necessary. He undoubtedly is, as he so aptly states his own case, "just a dub."

On the other hand, we will give the editorial writer the benefit of the doubt and assume that he is a man of education and schooled by that experience with life and affairs which should produce a broadminded man, charitable toward his fellows. Mr. Dorr moves to attack the reputation of "graduates of medical schools of repute and good standing" and apparently the editor of *Collier's* seconds the motion. In the light of what the science of medicine has accomplished for the welfare of the world, such an unwarranted attack seems a slur upon the medical profession as a whole.

In these times, when our daily press chronicles in practically every issue instances of those who have fallen from high places—statesmen, lawyers, ministers, financiers, etc., it would seem as though there might be some black sheep even among the magazine publishers and editorial writers. Why then blackguard the medical profession if there exist in its ranks some who are not as able or honest as their fellows? The old Biblical adage, "Let him among you who is without sin be first to cast a stone" is applicable today.

I hold no brief for quacks or graduates from diploma-mill schools. Held in contempt by the regular practitioners of medicine, and in spite of all warning against them constantly circulated through the lay press, they and their brethren, the patent medicine parasites, still exist in alarming numbers due to the many loopholes in our legal machinery and the demands of a gullible public. They are but the hangers-on of that fine army of qualified graduates which is giving real service to these United States and to the world. I maintain that there has never been any class of men, professional or otherwise, which has given so freely of time and skill to the public for so little recompense. The combined daily charity offering of the doctors of the United States is probably one of the largest and certainly one of the least advertised. In addition, all discoveries tending to alleviate suffering, eradicate diseases or prolong life have been put at the service of the public, as soon as they could be disseminated by the medical press, all without any "patent rights" to enrich the patient investigators.

I have met many hundreds of doctors from all over the United States. Some of them rode many hours daily in the saddle, poorly dressed and with a mediocre outfit. Others had expensive limousines and an elaborate equipment. I also know that there has been so much difference in the mental caliber of these men, though in the matter of brains and experience one can not pass judgment by merely glancing at the outside trappings. With the exception of some charlatans, who as long as we are human will appear in all ranks of society, I have never seen any member, no matter how humble, of the great army of real physicians, whom I did not think was entitled to the respect and gratitude of his fellowmen.

FREDERICK P. DROWNE.

Warren, R. I.

THE MATHEMATICS OF LIFE

One trouble with most of us is that we are not fully aware of the shortness of life. Particularly is this true of people who are still young or who consider themselves young.

I was startled when I looked at it in the following way, which I believe is a perfectly fair way of looking at it:

Up to the age of sixteen, it may be excusable to be a "loafer" or to take life fairly easy. Up to that age, we are inexperienced, our time has little money value, and we grow rapidly.

At the age of seventy, I am assuming that it is our privilege to retire, if we wish so, that loafing is excusable after that age.

This gives us (70-16) 54 years of life during which we should spend at least eight hours seriously out of every working day. Eight hours are allotted to sleep and the other eight hours to dressing, walking or riding to and from work, eating, and recreation.

It is also considered excusable not to work during Sundays and holidays, including Saturday afternoons, so that our active life is still further curtailed.

On a basis of eight hours per day, five days per week and four hours on Saturday, we have the well-known "44-hour-week." Multiplying by 52 weeks, we get 2,288 hours. From this must be deducted 96 hours for 12 holidays which most of us take—namely, New Year's, Lincoln's Birthday, Washington's Birthday, Good Friday, Decoration Day, July 4th, Labor Day, Columbus Day, Election Day, Armistice Day, Thanksgiving Day and Christmas Day, leaving 2,192 hours per year. I will be generous and will not deduct any time for vacations, for sickness, or for special

"off-days" taken by many of us.

Multiplying 2,192 hours per year by the 54 active years, we get only 118,368 hours as work hours.

In hours, this may sound like a great deal; but, divide it by 24, and one finds that it means only 4,920 days, which divided by 365 shows that it is only 13.5 years. In other words, we work only 13⅛ continuous years and are then satisfied to call it a "well-rounded out life." Let us take a child 14 years old who will be trained to work 44 hours per week and who will observe all the holidays and other trimmings. He has already lived longer before he begins to work than he will work during his whole lifetime after getting started.

Furthermore, these figures are useful in explaining to us why most people have little or no wealth in their old age. If it would be possible to save one dollar per hour for each working hour, a man at 70 years of age would be worth $118,368.

By saving 50c per hour	$59,184.00
By saving 25c per hour	29,592.00
By saving 10c per hour	11,836.80
By saving 5c per hour	5,918.40
By saving 1c per hour	1,183.68

The average person does not save 5c per hour.

Life is indeed short. It is unnecessary to ask a person who has lived through 70 years. These figures prove it. It is impossible to place too great a valuation on one's time.

The above also proves that it is impossible for a wage earner, at the present wage scale, or even at the recent war wage scale, to become a millionaire without receiving about $9.00 per hour during every working hour of his life. Out of his wages $8.46 per hour would have to be saved so that, at the age of 70, one million dollars would be saved.

W. F. SCHAPHORST.

Newark, New Jersey.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Graduate Nurse

Graduate Nurse (Visiting Duty)

Applications will be rated as received until December 30. The examination is to fill vacancies in the United States Veterans Bureau and in the Indian and Public Health Services.

The entrance salary in the Indian Service, both for hospital and visiting duty, is $1,500 a year. Furnished quarters, heat, and light are allowed appointees free of cost.

The entrance salary in the Veterans Bureau Hospital Service is $1,680 a year; and in the Public Health Service, $1,020 a year, with quarters, subsistence, and laundry free of cost.

Applicants must have been graduated from a recognized school of nursing, requiring a residence of at least two years in a hospital having a daily average of thirty patients or more, giving a thorough, practical and theoretical training, and must show evidence of State registration.

Applicants for the position of graduate nurse (visiting duty) must meet the requirements specified above and, in addition, must have had at least four months' postgraduate training in public health or visiting nursing at a school of recognized standing; or, in lieu of such training, one year's experience under supervision in public health or visiting nursing.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. Civil-Service Examiners at the post-office or customhouse in any city.

AMBULANT TREATMENT OF VARICOSE VEINS

I intend to write a series of articles on the ambulant treatment of varicose veins of the leg by intravenous injections, and would welcome contributions from physicians who are interested in the subject and wish to make any suggestions.

I will be pleased to give credit to these physicians for their suggestions and methods.

EMILE BRUNOR.

44 Edgecomb Ave., New York, N. Y.

A NEW CHAIR AT JEFFERSON MEDICAL COLLEGE

In recognition of the far-reaching developments of bronchoscopy in the diagnosis and treatment of diseases of the lungs and of esophagoscopy and gastroscopy in the diagnosis and treatment of diseases of the esophagus and stomach, the board of trustees and faculty of the Jefferson Medical College have created a new Chair to be known as the Department of Bronchoscopy and Esophagoscopy. Dr. Chevalier Jackson, formerly Pro-

fessor of Laryngology in the Jefferson Medical College, has been elected to the professorship of the new department. Dr. Fielding O. Lewis has been elected to fill the Chair of Laryngology vacated by Dr. Jackson.

FIGURES DON'T LIE

When you are asked to join the Red Cross, during the Roll Call, which will be held this year from the 11th to the 27th of November, you will want to know what your money will be used for — what the Red Cross is doing. You will not be satisfied with vague, idealistic phrases; you will want facts and figures.

Figures don't lie.

If you ask the Red Cross what it is doing, it won't say: "Oh, I've got tremendous plans for the future. I'm going to do this, and I'm going to do that, and then when I get around to the other thing you'll see wonderful results." It won't fill you up with windy generalities. It will say: "What am I doing? Take a look at these figures."

"Since the Armistice, I have expended $50,000,000 for services to men of the army and navy and World War veterans. I am now assisting more than 100,000 disabled veterans and their families, each month. To 180,000 soldiers, sailors and marines on active duty I am giving the same help I gave during the war. I have 41,000 nurses enrolled for emergency—war, disaster, epidemic.

"In the past 43 years I have expended $33,000,000 for disaster relief: I have directed or participated in relief work in 220 disasters the past year.

"Abroad I represent the American people in works of mercy when great catastrophies cause abnormal suffering.

"Within the year, 974 Red Cross public health nurses have aided in the care of the sick, guarded the health of children and fostered understanding of personal and community hygiene.

"Sixty-five thousand women and girls have taken courses in home hygiene and care of the sick; 135,000 children and 10,000 women have been taught the importance of proper use of foods.

"More than 49,000 men, women and youths have been trained to rescue and revive the drowning, 14,500 completed the course in first aid during the year and 137,000 were reached with demonstrations by the Red Cross first-aid car.

"Volunteer workers have produced in the past year 150,000 garments, 1,000,000 surgical dressings and 87,000 pages of Braille; have made 15,000 motor calls and fed 22,000 persons in canteen service.

"In the Junior Red Cross 5,452,745 enrolled school children are learning the value of service. With the children of 40 other countries, they are creating bonds of mutual friendship and understanding.

"In 500 communities, the Red Cross chapter is the only family welfare agency."

These are the figures which the Red Cross will give you, the record of accomplishment to which it will point. The Red Cross has kept faith with you—it is up to you to keep faith with the Red Cross. Join, then, during the Roll Call, and reaffirm your faith in the ideal of service for which the Red Cross has always stood.

THE AMERICAN NATIONAL RED CROSS holds its annual nation-wide ROLL CALL from Armistice Day, November 11th, through Thanksgiving Day, November 27th. In this period it seeks to reenlist its present membership and to enroll new members for 1925. The Red Cross "makes its appeal for support directly to the conscience of mankind." Every one is invited to join through the local Chapter or Branch.

THE WHITE INDIANS OF PANAMA

I have been thinking a great deal about those "white Indians" of Panama, of whom so much has been said and written; so I give you a few facts which have a bearing on the subject.

I do not think the "white Indians" are such, properly speaking. There is no "sich animule".

I have been among the Indians of Central America and southern Mexico, especially the Maya and Quichè Indians, and have seen numerous albino types, with white hair, white, freckled skin, and the accompanying greenish-blue eyes. Among the mountain tribes of Guatemala there are many of them, and they are offspring of pure-blooded Quichès, who in turn are an offshoot of the great Maya race, lineal descendants of the Toltects, and antedating the Aztecs by centuries. They were partially subdued by the Aztecs and some of them migrated southward, where they formed the Quichè kingdom, which at one time embraced the territory between southern Mexico and Colombia; the inhabitants of the distant regions paying tribute to the Quichè kings until the advent of the Spaniards.

In appearance these albinos are not beautiful; they give the effect of having been scalded and skinned, the new skin being white (too white) and covered with freckles where exposed to the sun.

Furthermore, these "white Indians" are offspring of the dark-skinned inhabitants of the region; and, while there may have been admixture of other racial strains in the cases of albinos of other countries (and even in Panama), it is extremely doubtful that there is any such thing in the case of the mountain tribes of Guatemala, for they are so extremely jealous of outside interference that any such intimacy would, at the very beginning, be summarily dealt with. So, the mountain tribes have preserved their racial purity, for it is one of the tenets of their religious belief handed down from father to son and especially stressed by the wizards, or religious leaders. I am now speaking of the inhabitants of the interior mountain regions, as the foregoing is not applicable to the Indians of the accessible and more civilized (?) regions.

I have seen many albinos among the Quichè Indians, where they are called "children of the sun". Some of them are to be seen caring for their sheep upon the mountains, while at times, such as feast and fair days, others may be seen in the markets. However, as a rule, these albinos are carefully shielded from the gaze of the curious, and many of them are never permitted to mingle with their fellows. Nor do I know of marriages of these albinos, either among themselves or with the dark-skinned Indians, though such may be the case in rare instances, for it is extremely difficult to study these people, owing to their suspicion and hatred of foreigners.

To me it seems ridiculous that such a stir should have been made about the "white Indians" of Panama, and there seems to have been but one verdict possible as to their origin; and that was that they are albinos.

And, while there may be some foundation for the judgment of the Washintgon scientists that the Panama specimens were afflicted with vitiligo, there is no vitiligo among the interior tribes of Guatemala. In some parts of southern Mexico, in the southwestern region, there is much vitiligo, especially among the people who consume large quantities of fish, but I have never seen a single case among the independent mountain dwellers of Guatemala. Furthermore, would vitiligo change the color of the eyes from black to blue?

In one Indian family, in touch with civilization, several of the children born of dark-skinned parents were of the classical albino type, boys and girls, but there were no other examples in the families of the blood relations.

That the "white Indians" represent reversion to "original Nordic type" seems to me fantastic; for, while there are numerous traditionary beliefs of white men having been seen in Mexico, Central and South America in prehistoric times, yet they could not have been present in numbers (for each district preserves legends of one white man venerated as a god), and while we may well believe those ancient beings were quite virile, it is doubtful that they could have left such a permanent impress upon the dark-skinned, black-blooded inhabitants of the tropics. And even though they had been the most virile of satyrs, I am persuaded that their individual characteristics would have been outbred long ago; and there is no doubt whatever about the purely Indian characteristics of the albinos of Guatemala.

Among some fourteen thousand Indians vaccinated against smallpox by me, there were a few albinos; and, while my study of them

was limited by circumstances, yet I did observe them with more leisure than had ever before been possible, and there was nothing of the Nordic about them.

The hair of some of the albinos seen by me among the Indians of Central America was white; that of others yellowish or red. The absence of pigment in the eyes gives rise to photophobia and nystagmus, which causes them to avoid the bright sunlight and leads them to keep the lids partly closed while exposed to the sun.

Therefore, while leukoderma and vitiligo seem to be synonymous terms, and so used interchangeably, my opinion is that there should be more care used in these terms. And while albismus is congenital leukoderma, and therefore complete, I would prefer to use the word vitiligo as describing that condition of the skin presenting more or less circumscribed patches, on the hands, arms or other parts of the body; and this disease is very prevalent in the tropics. Also, vitiligo develops during life, and in some localities seems to be more or less contagious, but perhaps only through sexual intercourse, for I know of some cases acquired this way.

In Panama it seems to have been the custom of the Indians to segregate their albinos in more or less inaccessible places; in the mountains of Guatemala they stay around their homes rather closely, but there is no religious significance attached to this; rather it seems to be their own sensitiveness to strong sunlight.

C. F. Secord.

Omaha, Nebr.

THE SURGEON GOT THE FEE
The Doctor The Blessing

I should like to relate an actual experience I had with a case and I don't think any one will question where I stand on the division of fees question, as I am a country physician not a surgeon, and I think they are about the only ones who are against it. I was called one evening about nine o'clock to see Miss G., whom I found to be suffering from a frank case of acute appendicitis. As we are fifty miles from the nearest hospital, there was nothing to do but give her enough morphine to quiet her, order ice bag on side and nothing per mouth and a trip to the hospital next day, if she was not any better; otherwise, to wait until inflammation had subsided and operate in the interval between spells. Next morning the patient was no better, possibly a little worse; pulse rate up, etc. So I put her on a stretcher and sent her to the hospital. I was not asked to accompany her. She was operated on that evening and made an uneventful recovery which was all very nice for everyone. But, here, to my way of thinking, is where the ridiculous part comes in. The father of Miss G. has owed me a bill for three years; he would pay me if he could but he has a large family and does not own his farm but he pays as much on account as he can possibly do and live. His brother is rather well-to-do and, when he found it necessary for Miss G. to go to the hospital, he immediately offered to sign a note with his brother at the bank for the necessary expenses, which offer was accepted. He also very kindly selected the surgeon who is a good one, by the way, but who does not believe in the division of fees, at any rate, I don't believe he does as he never acted that way toward me. I was asked to call the surgeon and explain to him minutely the exact financial status of the patient, which I did, and he promised to be as "easy as possible" on them in a financial way. He was; he charged them $150 before the operation was performed!

After her return from the hospital, I dressed the wound a few times and had a little stitch abscess which did not amount to anything. I have never received anything for that up to date and, as for my bill of three years' standing, I suppose that's a "goner."

To continue: within a few days after Miss G.'s return from the hospital, I received a large legal-looking envelope with the record of "my" patient's stay in the hospital; the white count, red count, hemoglobin, urine, feces, and finally the Wassermann. I think I shall have it framed as that is all I have to remind me of "my" patient's sickness. But at the foot of the record it said, "final diagnosis; acute appendicitis." I had made that the day before her admission to the hospital with nothing else but my hands and eyes.

To sum it all up, the surgeon has $150 of good American money while I have the aforementioned document and three trips, five miles in the country, and four dressings charged to patient's father, which amount it is very doubtful that I ever shall get. You say, I am a "poor collector." Well, I will not deny that,

but I can't take bread out of the other children's mouths and his well-to-do brother will not sign any notes to pay *me*; so, there you are.

The surgeon in question would not "divide a fee." He is too ethical to do that, but he will take every dime that poor father can rake, scrape, beg, borrow or steal for the operation and then tell me I should collect any part I expect from the family. Great stuff, isn't it?

I will venture the assertion that ninety-five percent of the country doctors believe in the division of fees; it is only the surgeons who don't. I don't think it could possibly increase the unnecessary operations, as I see a good many operations being performed by very young, inexperienced surgeons every time I am in the city, and I am frank to say that the indications for surgery in some few, at least where I had the good fortune to see the diagnosis sheet, etc., were very scanty.

JAS. E. GOODMAN.

Pleasant Hill, Ill.

ANNUAL PHYSIOTHERAPEUTIC MEETING

H. G. Fischer & Co., Inc., is holding its Annual Physiotherapeutic Meeting, at Chicago, October 20th to 24th, at The Logan Square Masonic Temple.

The meetings, where all manner of subjects pertaining to Physiotherapy may be discussed openly and informally, are the direct result of numerous requests, due to the difficulty experienced by physicians in obtaining practical information from reliable sources in the efficient application of these measures.

For names of physicians participating, see advertising p. 39.

The Highest Work

THE greatest work that willing hands may do
Is to supply the needy wants of man:
To soothe his sorrows, dying hopes re-fan
To living flame; be to the hopeless true
And heal distress; build up the creature new
And lengthen out the racial living span.
Who views with Nature, learns her working plan,
Knows how with life she did man's frame imbue,
Has wisdom great beyond the common ken
And powers for good none others may acquire.
Close thinking, searching Nature to her end
Gives quality of service, acumen
In solving doubts, whose interests never tire
And constitutes humanity's best friend.

JAS. A. DEMOSS.

Thayer, Kansas

Let Us Play

Conducted by All of Us

Selecting the Rifle or Gun

LONG before the ape man turned his eyes heavenward and became homo sapiens, he was primarily a hunter. Necessity compelled him to obtain the major portion of his sustenance in this manner. His prowess as a hunter stood him in good stead also as a protection against the wild beasts which roamed about the steaming jungles. The caveman's hunting was, therefore, both offensive and defensive and born of necessity.

Gradually, as agriculture and the domestication of animals became a dominant factor in human industry, hunting became less essential as a means of livelihood. It then began to take on the characteristics of a sport and the encroachments of civilization with its consequent restriction of game areas made the killing of game as a means of defense almost a lost art.

Today, the spirit of the chase remains as a cherished heritage of our cave-man ancestors and survives almost solely as a means of outdoor recreation—an excuse for getting out and sleeping beneath the stars and envying the man of the stone age for his good sense.

While the encroachments of civilization have abolished many game regions and excessive shooting decreased the quantity of game in others, wise legislation and restocking have kept up a supply of game in many sections where man may still indulge in some fairly good hunting. Deer are on the increase in many parts of the east; moose are spreading out into territory where they have been seen before and ducks have increased considerably within the past five years. On the debit side of our ledger of game resources, we find, however, that partridge, quail, turkey, woodcock and several other game birds have shown an alarming decrease within the past decade and the enactment of very stringent game laws and intensive education will be necessary to save some species from total extermination.

The object of this little article, however, is not to expatiate upon the principles of game conservation, but rather to make a few suggestions as to suitable arms and ammunition for use in the commoner forms of game and wing-shooting.

For the larger species of game, such as moose and elk, rifles chambered for .30 Govt. '06 ammunition are great favorites and are steadily increasing in popularity. Among these the U. S. Army Springfield Model '03 is perhaps deservedly the most popular. For sporting purposes, of course, it is generally restocked with a sporting stock, as the regular military stocks are too cumbersome for use in the field. The Winchester Model 95 and the Remington Model 30 also handle the .30 Govt. '06 cartridge. There are also several foreign arms which are chambered for this same cartridge.

The great advantage of rifles handling this ammunition is that they will chamber any of the great variety of loads on the market. In this way, the rifle is made suitable for use on all except the smallest game. It may, therefore, be said to approach as closely as is possible the requirements of an "all around" rifle.

Of course, there are a number of other splendid arms on the market suitable for American big game shooting. Among these may be mentioned the .405 Winchester, especially suitable for grizzly hunting, the .35 Winchester, the .33 Winchester, a splendid moose gun, the .35 Remington, the .300 Savage, the 8mm. Mannlicher Schoenauer, etc.

The demands of most hunters, however, require an arm only sufficiently powerful to kill a deer. In such instances, most of the above-mentioned rifles are rather too powerful, especially at the comparatively close ranges at which most of the deer of the north woods are encountered.

As a typical deer rifle, it is perhaps safe to say that a 30-30 is the prime favorite. There are Winchester, Savage and Marlin rifles made to handle this ammunition. They are all well balanced and highly reliable rifles.

The .32 Winchester Special, the .30 Rem-

ington and the 250-3000 Savage rifles are also splendid arms for this purpose.

For smaller game only, such as coyote, fox, woodchuck, etc., there are a number of suitable cartridges. For short range work the 25-20 and 32-20 are to be highly recommended. Several manufacturers make rifles to chamber these cartridges. For longer ranges the 25-35 and the Savage 250-3000 and .22 High Power are generally to be preferred.

For the majority of wing-shots, the 12-gauge is still the closest approach to the "all around" shotgun. There has been, however, a marked tendency within recent years toward the smaller gauges such as the 16 and the 20. Even the 28 and the tiny 410 have their favorites. It should be borne in mind, however, that the small gauges are effective only in the hands of those skilled to their use.

For duck shooting, the 12-gauge is almost always to be recommended. The 10-gauge has become rather obsolete, but is still a favorite for long range work, especially among the "old timers."

For the heavier types of field work such as partridge and pheasant, the 12-gauge is also generally preferred except among the more proficient wing shots. For the shooting of smaller birds, such as quail, woodcock, snipe, etc., the 16-gauge is perhaps a more logical weapon and the 20 for those better skilled in the art of wing shooting.

For ducks and geese, 30-inch barrels are generally most favored and preferably both barrels full choke or the right barrel full and the left modified choke. Twenty-eight-inch barrels are generally preferred for field shooting. The proper boring of the barrels for upland shooting is largely dependent upon the nature of the cover. Full and modified choke makes a fairly good combination for most purposes; but, for use in thick cover, the barrels should be rather more open.

The sizes of shot generally recommended are BB or No. 2 for geese, No. 4 or No. 5 for ducks, No. 6 for rabbits and pheasants, No 7 for partridge, No. 8 for quail and woodcock and No. 9 or No. 10 for snipe and shorebirds.

The subjects of boring, length of barrels, loads, etc., are too lengthy to be given any detailed consideration in so short an article and will therefore have to be set aside for discussion at some future date.

While this article does not even tend to approach a semblance of completeness, it is hoped that the few hints or suggestions which have been given will prove of some value to those who contemplate the purchase of a rifle or shotgun for their fall hunting trip.

RAYMOND SCHRENKEISEN.

New York City.

A DOG THAT DIED OF A BROKEN HEART

Uncle Tom Ruggles and his pet dog Fritz were my fishing mates for years and years. Uncle Tom was an old bachelor and lived in a log cabin on a hillside overlooking a good-sized lake. He did nothing but fish and trap, and Fritz did nothing in the world but traipse after his master every day in the year.

Fritz was just an ordinary-looking spaniel, but he carried himself with all the dignified reserve and common sense characteristic of the breed. Never in my life have I seen such attachment between man and animal as the tender devotion these two showed for each other. The old man was nowise himself unless the dog was at his heels, and the dog was never a bit happy when an inch from the old man.

Not having seen anything of my old friend and his dog for a good while, I went to the hut one day to ask how they were coming on. There was nothing astir about the place but a few half-famished chickens. Going down to the lakeside, I there found Fritz lying on Uncle Tom's coat. He was nothing but a sack of bones, from starvation, and looked the very picture of desolation in every way. Not seeing the old fisherman anywhere, I was afraid he had drowned, there all by himself; and so I began searching the water. Sure enough, not far from where the dog lay, I found the singular old recluse, dead, and from appearances I judge he had been in the water a week or more. When the body was fetched to the bank Fritz licked the face and hands dry and lay down against his dead master.

I carried Fritz home with me and offered him all sorts of tidbits that I knew he was fond of, but he never ate a bite or drank a drop of water. He lay and moaned and paid no attention to anything going on around him. Within a week, he too was dead and buried beside his lifelong idol. Let others think as they may. As for myself, I know that a dog can die of a broken heart.

S. S. RATHER.

Jacksonville, Texas.

What Others are Doing

NEUTRAL ACRIFLAVINE IN ULCERATIVE COLITIS

During the past two years, Drs. Crohn and Rosenberg (*J. A. M. A.*, Aug. 2, 1924), have used a solution of neutral acriflavine locally in ulcerative colitis and report satisfactory results therefrom.

The drug gives a yellow solution which is strongly antiseptic and has in an unusual degree the property of rapid diffusibility. It effectively inhibits the growth of the colon bacillus, as Davis and Harrell (*J. Urology*, Aug., 1918), have previously demonstrated. That it is safe to use appears evident from the fact that large quantities have been injected into the pleural cavity and into veins without mishap. In the rectum and colon strengths of 1:4000 to 1:2000 appear to be practically devoid of irritating qualities.

Neutral acriflavine has another merit, namely, that of penetration. It was not unusual to note the deep staining of the rectal mucosa with the dye as late as twelve hours after the last acriflavine enema had been given.

Success in a case of gonorrheal proctitis suggested its probable value in colitis.

The best results are obtained by beginning with an enema of 750 Cc. of a 1:4000 solution, the enema to be given twice a day and retained each time for from ten to twenty minutes. The patient lies in the left lateral position during the injection, an ordinary rectal tube inserted 3 or 4 inches being all that is necessary to assure full contact of the colon with the solution. No other cleansing enema is necessary during the course of the treatment. As the symptoms of urgency and diarrhea abate (and as they usually do within the first, or in obstinate cases within the second week), the treatment may be reduced to once daily, increasing the strength of the solution to 1:3500, and in a few days to 1:3000. An excess of mucus in the colonic return calls for a diminution in strength and frequency of the treatments.

The treatment is continued until the temperature is normal and the diarrhea has ceased.

One may now administer the neutral acriflavine enema on alternate days, using a weak solution of sodium bicarbonate (0.5 percent) on the intervening days, the weak alkali tending to increase the antiseptic action of the dyestuff. The treatment is continued until proctoscopic and sigmoidoscopic examinations clearly demonstrate the disappearance of all ulcerative lesions and the return of the normal appearance of the rectal and sigmoid mucosa. In the early stages, an examination once in two weeks is all that is desirable; the discomfort of the examination in the acute stage is not well tolerated by an exhausted patient. As healing proceeds, weekly examinations are advantageous; at this stage the patient, convinced of the progress he is making, is glad to cooperate.

The earlier local effect of the neutral acriflavine enema is a marked lessening of the frequency of the stools, a diminution, and eventually a disappearance of the urgency or straining at stool. Coincidentally, at least in the cases that act favorably, the temperature diminishes and the patient feels subjectively a marked improvement in his appetite and in his general state of well-being.

Sigmoidoscopic examinations made at this time reveal a lessening of the diameter and depth of the ulcers; the purulent secretion is replaced by a mucoid or seromucoid discharge; the rectal mucous membrane shows less tendency to bleed as the tube of the instrument is introduced; free blood in the rectal canal may already be absent. By the second week one observes a disappearance of the ulcerative lesions. A few small, superficial ulcerations may remain; the mucosa is no longer injected and hemorrhagic, but has assumed a fairly normal appearance. A mucoid discharge may be present, but blood and pus are conspicuously absent. The stools at this time are semisolid or solid, and passed without straining.

By the third or fourth week, one not infrequently observes full healing of the mucosa of the lower segments of the bowel. It is astonishing how rapidly and completely a bowel studded with small or with larger, even deep and indurated ulcers can give place in a few weeks to a normal appearing mucosa in which no evidence of the previous lesion can be found.

The healing of an ulcerated mucosa any-

where in the gastro-intestinal tract without the evidence of scar formation is an accepted fact, cicatricial contractures or permanent scarring taking place only when the most aggravated ulcers have penetrated the mucosa and submucosa and invaded the muscularis and pericolonic tissues. About the anus and in the lower segment of the rectal ampulla, healing with scaring and stricture formation not only may, but frequently does, take place. With this exception, however, even deep lesions of the rectum and sigmoid heal without leaving a trace visible of previous existence.

In the chronic cases, those of long standing averaging from six months to as many years, or more, the results are proportionately less striking and favorable; failure of the method of treatment may and does take place. On the other hand, though a complete cure may not occur, an alleviation and improvement of the symptoms almost invariably is observable, the number of stools being diminished to one or two a day, and the tenesmus being practically without exception entirely relieved.

The procto-sigmoidoscopic picture usually shows a prompt change for the better, the purulent nature of the discharge changing to a clear mucoid secretion and the ulcerations diminishing perceptibly in size and number. Only the largest and deepest ulcers may persist, all the smaller punctuate and superficial, irregular lesions disappearing. In a fair number of cases, by persistence of treatment, a complete healing of the entire visible mucosa may be seen, with apparent and lasting cure of the disease.

As the lesion heals and the ulcers disappear, a stage is reached in which only a granular, dry, follicular appearance of the mucosa remains. By further diligent treatment, this too disappears, to be replaced by a mucosa of normal texture, hue and appearance.

SPRING FEVER

The peculiar restlessness, inability to concentrate, disinclination to work, the desire to leave the house and other confined spaces, all of which we characterize as spring fever (a form of wanderlust) has sometimes appeared to us as pure laziness (that is, when we saw it in others), or as a very distressing state of affairs that could be remedied only by playing "hookey" (that is, when it affected us, personally). We have made our disrespectful remarks about popular "superstition" when our patients approached us for spring tonics. We have even noted, with amusement, but without reflecting upon it more definitely, the abandoned and manifest pleasure that animals show when they are first permitted to escape from the barn in spring and to disport themselves in pasture. We might have known that there is something behind it all; the fact is that we didn't think deeply enough, or that we just didn't happen to think of it at all.

Fortunately, Prof. R. Ehrström, Helsingfors (*Finska Lakaresallskapets Handlingar*, through *Lancet*, June 21, 1924), publishes certain graphs representing a study of first attendances during 1921 and 1922 at the University Polyclinic, in Helsingfors, of the patients whose symptoms were exclusively or mainly characteristic of neuroses. There were 3,309 such patients whose first attendances during the 12 months of the year are mapped out in the heavy line of the graph. It will be seen that these first attendances were most frequent in the spring—the period when general lassitude is most common. After midsummer, the graph shows a rapid fall which, except for two slight interruptions, is maintained till the end of the year. The dotted line represents the monthly incidence of the 5,471 suicides committed in Finland in the period of 1851-1907. It will be seen at a glance that the profile of the two lines is remarkably similar, and Dr. Ehrström suggests that this similarity is due to identity of the factors responsible for both. Their height towards midsummer might suggest to the casual observer that the sunlight and warmth of the early summer had exercised a deleterious effect on the stability of the nervous system, but that is an explanation which Dr. Ehrström does not accept. The incidence of neuroses between April and August and between October and February was as 9.1 to 7.2, and, in the case of suicides, as 10.1 to 6.5. These differences were, in his opinion, a matter of accessory food substances or vitamines.

The good effects of an adequate supply and the ill-effects of an inadequate supply of these substances would seem to be comparatively slow in showing themselves. In the spring, and even in the early summer, the inhabitants of Finland still suffer from the inadequacy of their vitamine supplies during the winter, and, the good effects of an adequate supply of vitamines being also tardy. December finds most persons in Finland still enjoying the benefits of the short summer of Northern Europe. As Dr. Ehrström puts it: "We are well in the autumn after the light and open-air life of the summer, and we feel unwell

in the spring after the darkness of the winter and a sojourn within four walls. We live, so to speak, in the autumn and winter on the stored-up light of the summer."

The fact that animal life in general suffers from the same handicap as human beings in this matter prevents the inhabitants of Finland from making good the shortage of vitamines in the vegetable kingdom by living on the animal kingdom and its products. Dr. Ehrström's study and the conclusion he draws from it, although going at present a little beyond the facts submitted, certainly stress the value of the accessory food substances and the importance of agencies such as sunlight, for which we have only imperfect substitutes.

A PRESCRIPTION USEFUL IN GALL-STONE DISEASE

Numerous foreign journals are discussing the new views of cholecystitis and cholelithiasis, with special reference to treatment, which were announced some time ago by Drs. Werner and Runck, of Mannheim, Germany.

The symptoms are naturally sequential to precipitation of concretions in the stagnant bile. It follows that a free flow of bile must be established while the precipitated particles are still small enough to pass through the gall-ducts; for, when stones approaching the size of a pea have already formed, it will be impossible for the system to get rid of them. The pathologic processes which favor the increase in size of the precipitations may be checked by increasing the amount of bile salts in the bile. These bile salts not only keep the cholesterin and the lime in solution but also act as cholagogs, thus rendering a new infection more difficult.

In many cases considerable, if not complete, relief may be given the patient during the period of acute distress. The investigators have tried a great many drugs, having in view always the paramount desirability of increasing both the biliary flow and its content with respect to its physiologically essential salts. A chemical combination of cholic acid and the salicylates was finally decided upon as the best prescription, which preparation is known in Europe and elsewhere as agocholan.

They report it to consist of a combination of the cholic and salicylic acid salts of strontium with a trace of phenolphthalein-diacetate. From a series of experiments, in which they use various alkaline earth salts of these acids, they found that of the strontium to be the most effective in allaying inflammatory processes. Furthermore, they state that the solution of strontium cholate lies physically between a crystalloid and colloid and exerts a particular physiological effect. Salicylic acid has long been known as a potent cholagog and has been used particularly as an antiseptic and effective analgesic. The diacetate of phenolphthalein acts as a nontoxic laxative to regulate the bowels, thereby indirectly aiding the circulation of the bile.

There is considerable evidence in the way of clinical reports to indicate that agocholan is symptomatically effective in many and especially early cases.

A CASE OF DERMATITIS EXFOLIATIVA SUCCESSFULLY TREATED

The skin picture in a case of dermatitis exfoliativa following arsphenamine is thus presented by the physicians of the Johnston-Wickett Clinic, Anaheim, Cal. (*Am. J. Syphilis*, No. 3, 1923).

Symptomatically, we have nervousness, irritability, gastro-intestinal upsets, evidences of acute infection, fever after intravenous medication and itching of the palms and soles. In a short while there appears symmetrical, acute, maculopapular or vesicular dermatitis with great edema, intense itching and burning and rapidly mounting temperature. Diarrhea may be severe, the foul-smelling stools resembling those of pellagra. Exfoliation of fine and large flakes occurs and casts of the foot or hand may be formed as in erythema scarlatinoides and scarlet fever. Venipuncture at this time is difficult, due to the extreme tenderness of skin and the tense edema.

The case referred to was that of a woman, 35 years old, who consulted the physicians primarily on account of pain in the chest and rapid loss of weight. She had been married eight years and had had one normal delivery followed by five miscarriages. A serum Wassermann test was strongly positive, but the urine, blood nitrogen and spinal examinations were entirely negative.

The patient was put on a rather high carbohydrate diet and between August 12 and September 18 a total of 2.6 Gms. of neoarsphenamine and 0.3 Gm. of soluble mercury was given. She gained in weight and felt stronger. Twenty-four hours after the fourth injection of neoarsphenamine she became nauseated and complained of intense general itching, pain in the abdomen and swelling of the tongue.

Epinephrin and a drastic cathartic were given, but on the next day a generalized vesicular dermatitis with marked edema appeared, accompanied by clouding of consciousness, loss of the knee jerks, and contraction of the pupils. The temperature rose steadily and the edema increased until venipuncture became impossible. As the mental symptoms decreased, a salt-free and low protein diet and the administration of sodium hyposulphite by rectal tap were instituted. On October 22, when the edema had somewhat decreased, intravenous injections of graduated doses of sodium hyposulphite were given daily until 1 Gram was administered each day. The patient recovered rapidly although the exfoliation of large flakes continued to the time of dismissal from the hospital.

LIME STARVATION

The following interesting communication to the *British Medical Journal* is abstracted from that periodical (*June 28, 1924*).

Maxwell has shown that solutions of various calcium precipitants are without effect when placed on the motor area of the cerebrum, but immediately induce convulsion when they penetrate the underlying white fibres. This is the more interesting as the jaw is one of the most actively affected portions. The order in which precipitants act when given by mouth is first as cathartics, due to increased peristalsis from stimulation of intestines, then in larger doses producing peripheral twitchings (involuntary and irregular) and then contraction of the muscles of the extremities. The stimulus to the renal epithelium produces marked diuresis. Very large doses produce peripheral twitchings of the jaw with continuous chewing, which may perhaps be used as a sign of the need of calcium.

These symptoms are probably really produced by the excess sodium stimulation, due to diminution of the calcium by the disturbance of the Na:Ca ratio as shown by Ringer forty years ago.

It will be a matter of the greatest importance to find out whether it is the acidosis, as suggested in the article, or calcium deficiency which is the cause of the symptoms. The use of ammonia phosphate and neutral calcium phosphate should settle this. Far the most active salt of calcium, thinks the writer, is the diacid phosphate, which is apparently immediately absorbed, and consequently the dose is much smaller—about 1 to 2 grains. This may be given as often as necessary.

Along with the calcium salt it is well to administer parathyroid, as this has been found to act well in all cases which may be called calcium deficiency diseases. In the administration of many thousands of doses of parathyroid, in more than a hundred cases, the laws for its administration have been found to follow closely those of calcium. It is disadvantageous to use it in high blood pressure, renal insufficiency and cardiac strain, whereas it is always administered with advantage in cases showing assimilation deficiency, such as tuberculosis, gastric neurasthenia, chronic sepsis, and in senility, where biochemical elimination deficiency does not predominate. The rule for restraint in giving both parathyroid and calcium is that where increased viscosity of the blood would be disadvantageous both are contraindicated.

The parathyroid used up to date is sheep's parathyroid. The action is probably different from that of parathyroid obtained from cattle. The writer has found that calcium-sensitive people cannot take even a single dose of 1/50 grain without getting unpleasant symptoms, precordial discomfort or uneasiness being the first, then tachcardia and paroxysmal attacks. In one case dizziness and slight unconsciousness were produced, which ceased immediately in its discontinuance; in another, paroxysmal dyspnea at night causing desire for air rather than asthmatic symptoms. It is contraindicated in asthma. A good rule is to cease the administration of parathyroid if there is precordial discomfort or stabbing pains in the region of the heart. One may then give one or two 1/50 grain daily, never more.

Calcium acts apparently, as Ringer showed long ago, as a cardiac and muscular regulator. The effect on suitable cases coordinates with this idea. Suitable cases feel a considerable improvement in general tone and a feeling of well-being. To the pale, anemic, alkaline type it is peculiarly valuable.

FACTS ABOUT RHEUMATISM

A very interesting article appears in the *British Medical Journal*, June 21, 1924, by S. G. Billington, pathologist, bacteriologist and honorary assistant physician to the Wolverhampton and Staffordshire Hospital, entitled "Etiology and Treatment of Rheumatoid Arthritis and Allied Diseases."

In part he says:

The term "rheumatism" is very casually applied to the signs and symptoms of inflam-

mation of joint, nerve, muscle, or fibrous tissue. The first essential step is to determine the cause of the inflammation.

The causes of the socalled rheumatic conditions fall into line with the usual causes of inflammation, i. e., physical (mechanical or traumatic), chemical (metabolic, gouty, diabetic, alcoholic, etc.), thermal (heat or cold) specific (syphilitic, neuropathic, hemophilic, and the specific bacterial such as typhoid gonorrheal, etc.), and nonspecific bacterial. The author confines his remarks to the nonspecific bacterial group, mentioning the others only from the viewpoint of differential diagnosis.

He says, in part, that articular rheumatism, which is probably the most common variety, and certainly the most important from the point of view of disability caused, can be divided into two groups: (1) Rheumatic arthritis, usually polyarticular and associated with pyrexia, often accompanied by an endocardial lesion and generally controlled by salicylates. (2) The rheumatoid group (and in this he includes the various types of rheumatoid arthritis and osteoarthritis). This variety may be polyarticular or monarticular, and acute, subacute or chronic. The acute arthritis may develop as a primary disease or follow an acute febrile condition such as influenza, or result from a sudden exacerbation of the chronic. The chronic form may develop as such or follow the acute.

A very high percentage of rheumatic affections may, for practical purposes, be regarded as metastatic manifestations of focal bacterial absorption.

The pathologic varieties cannot be considered in this communication; but the fact may be emphasized that the disease represents a definite sequence of events, and that the treatment usually required is composite, illustrating the advantages of team work.

The treatment of the disease may be considered under the following headings:

1. Removal of infective focus.
2. Neutralization of bacterial toxemia in blood stream and affected tissue.
3. Orthopedic treatment of the results of the disease.
4. Psychological treatment also would be advantageous in many cases.
5. The general treatment of the patient by tonics, endocrine preparations, etc., must be kept in mind.

He mentions here also the use of vaccines as prophylactic against lighting up the disease by the orthopedic procedures.

In calling attention to the commonest sites of infection, which are the tonsils and accessory nasal sinuses, he also suggests that the gall-bladder is a much commoner focus of infection in rheumatoid and similar diseases than is generally supposed.

In a slight reference to the chemical cause of the disease, he says: "I think that the future will demonstrate that the essential chemical basis of the disease is a derangement of calcium metabolism."

The article as a whole is quite interesting, as it brings out much food for thought in the etiology and treatment of this very common ailment.

He certainly brings out the fact that we cannot expect to get good results by a "one-shot treatment." All factors must be met and corrected in order to reestablish normalcy in our patient.

For instance, the physician who uses vaccine treatment, which only meets the infective process, and fails to treat the trailing or complicating conditions, cannot expect to get very satisfactory results in the treatment of this disease.

Were it not for these various factor and complicating conditions which require the service and best thought of the trained physician, the patent nostrums for rheumatism might serve their advertised purpose.

ARSPHENAMINE BENEFITS NOT CONFINED TO SYPHILIS

The arsphenamines (*Prog. in Chemotherapy*, Aug. 1924) have been used successfully in diseases other than syphilis.

In relapsing fever, complete sterilization has often been obtained by a single intravenous injection of one of the arsenicals. In Vincent's angina some are recommending the local application of a 10-percent solution in glycerin, with which very successful results have been obtained. Neoarsphenamine is a good remedy for intestinal amebiasis (amebic dysentery).

Arsphenamine has also been employed with success in a number of cases of sleeping sickness. In frambesia or yaws, a contagious disease occurring in the tropics and caused by a spirochete similar to that of syphilis, a single dose of arsphenamine or neoarsphenamine may be sufficient to bring about a complete cure, though in some cases more than one injection may be required.

Early cases of gangosa, a disease prevalent in the Philippines and West Indies, when treated with arsphenamine, show an almost

miraculous improvement within twenty-four hours after the injection.

Arsphenamine and its derivatives have been employed in many other diseases, such as rat-bite fever, oxyuriasis, chorea minor, lichen planus and neurodermatitis, lupus erythematosus and in a number of instances where the ordinary forms of arsenic are usually employed, as for example, pernicious anemia, leukemia and splenic anemia.

The results so far obtained in malaria are particularly interesting, because of the prevalence of this infection and great damage resulting to the patient in chronic cases when usual remedies (such as quinine) fail. Some observers report splendid results while others doubt the value of organic arsenicals. More systematic investigative work is required and the article of Nunez is of especial value in this respect. The theoretical considerations of Ravaut, who attempted to establish a biological relationship between the treponema pallidum and the malarial hematozoon, are novel and important. Should it be established that the above parasites are related, there will be greater justification for the attempts to employ neoarsphenamine more extensively in the treatment of malaria.

THE LATEST WORD IN MERCURIAL GERMICIDES

Raiziss and Severac (*Prog. in Chemotherapy*, Aug. 1924) deal with the chemistry and merits of a new germicide which bears a long and almost unpronounceable technical name, for which reason its manufacturers list and advertise it as metaphen.

Its value is best arrived at by comparing it with some of the germicides already in use, such as bichloride of mercury and mercurophen. Both of these have a rapid destructive action upon that common pus organism, the staphylococcus aureus. But the action of metaphen is many times greater (from 11 to 20 times, depending upon the length of contact).

Another difference is this: whereas bichloride precipitates the serum albumins in a solution as weak as 1:1200, metaphen applied in a 1:200 concentration throws down not even a trace. This accounts in part for its effectiveness and perhaps also for the absence of irritation when therapeutic solutions are applied to skin or mucous membrane.

This last distinguishes it plainly from bichloride of mercury. In the laboratory, 0.05 Cc. of 1:10,000 metaphen solution instilled into the throats of rabbits for 11 days, and subsequently a similar quantity of a 1:100 solution for 9 days, showed no harmful effects whatsoever.

Still another advantage possessed by metaphen, pertinent in connection with its use as a sterilizing agent for instruments, is the fact that it gives a solution that is clear and does not stain the hands nor tarnish the instruments immersed in it, even when left in the solution for hours.

BISMUTH IN 311 SYPHILIS CASES

Drs. Leri, Tzanck and Peron (*Presse Medicale*, 1923, No. 67) studied the action of bismuth and arsenic on the Wassermann reaction of 2,500 patients. They selected 311 cases who presented a positive Wassermann prior to treatment. The Wassermann reaction was then observed during and long after treatment.

The results of their observations are as follows: Where an arsenical was used, the Wassermann remained positive in one out of five cases (48 out of 276); where bismuth was used, the reaction remained positive in one out of four (24 out of 96).

With the stages of the disease (primary, secondary and tertiary) as a basis, it was observed that arsenic was decidedly superior to bismuth in the primary period; the reaction remaining positive in one out of 18 cases with arsenic and in one out of six with bismuth. In the secondary stage the difference becomes smaller; the Wassermann persisting positive in one out of six cases with arsenic and in one out of 4.3 cases with bismuth. In the tertiary period bismuth becomes the superior remedy. The Wassermann becomes negative in two out of three cases with bismuth and in two out of four with arsenic.

The action of bismuth is of particular interest where the Wassermann is resistant to arsenicals. Under such circumstances, bismuth treatment changed a positive Wassermann to a negative in eight out of nine cases in secondary syphillis, and in three out of four in tertiary syphilis. Thus in arsphenamine-resistant cases bismuth may be used with what appear to be eminently satisfactory results.

FOR PSORIASIS

The Jour. of the Ark. Med. Soc. of recent issue prints an article by Purdum upon psoriasis and its treatment. He writes that he has obtained uniformly good results in the treatment of psoriasis by injecting 15 or 20

grains of sodium salicylate intravenously every three to five days. While the drug is being given, and especially if a small vein is being used, there may be some pain as the drug passes in, which radiates along the course of the vein. This seems to be due to the rapidity of the injection and may be quickly checked by giving the drug more slowly. In patients of an advanced age, the best results are obtained where not more than 20 gains are given at one injection.

In cases where the disease is of long standing, the author has found that the external application of a 20-percent mixture of chrysophanic acid and petrolatum aids markedly in cutting short the disease. The ointment is applied to the patches twice daily with a stiff tooth brush. The patients must be kept in bed and a full length union suit worn. The eyes are bandaged at night. This routine must be carried on for an average of seven days. The diet should consist largely of green vegetables, fruits and other articles having a high caloric value but a low protein one.

(Note by the editor). The injection intravenously of sodium salicylate and guaiacol, both drugs together in a suitable ampule solution, should be effective in many cases.

TREATMENT OF DIABETES BY PROTEIN THERAPY

In connection with the question of insulin therapy (*Gazz. Med. Italo-Arg.*, Mar. 1924, vii, p. 100), another modern therapeutic method is being experimented with for the treatment of diabetes, viz.: the parenteral administration of proteins. Singer, in Germany, has studied this subject, taking as his starting point animal experiments in which he has observed that diabetes produced by administration of adrenalin disappears after the application of protein therapy.

Passing on from these experimental data to the employment of the same method in human therapy, the author selected ten diabetics, whom he placed under protein treatment, without modifying their dietary to any appreciable extent. In a good percentage of these cases, he obtained rapid improvement, with a more liberal utilization of carbohydrates. In some cases, however, in which there was severe acetonuria, asthenia, somnolence and eczema, and which was cured by protein therapy; the sugar and acetone disappeared from the urine, local and general disturbances were remedied and bodily weight increased by 4 kgs.

The preparation employed by the author was Caseosan, in doses of 0.50 to 5 Cc. daily, given in two doses. Five to ten injections are sufficient.

It is not an easy matter to explain the mechanism of action of this new remedy, which has already supplanted specific vaccinotherapy in the domain of infectious diseases, but probably the heterogeneous proteins injected exert an abnormal stimulation upon the tissues, causing them to throw off their inertia, and also revive combustion.

It may be confidently anticipated that recent researches regarding insulin and protein therapy will render these methods, which have been for only a short time available to science, still more valuable, so that they, being within the reach of every practitioner, may prove of very great advantage and be a real assistance to sufferers from diabetes—a disease which, so far, has claimed many victims, and which has been held to be incurable.

PREVENTION OF POSTOPERATIVE HERNIA

A muscle-splitting incision should be used when possible. In long incisions muscle fibers must not be sacrificed needlessly, and the motor nerves must be saved. The fascia is the strongest structure in the abdominal wall and it is very essential to close it properly. It is frequently under tension and unites more slowly than muscle tissue; for this reason it is necessary to overlap each layer separately. When closure under tension is unavoidable, the patient's shoulders should be kept in a semi-reclining position and the knees elevated on pillows (the "jack-knife" position) for a week after operation. Tension or stay-sutures are valuable to prevent strain on the fascia stitches. A gain in weight after operation, especially in obese subjects, should be avoided because it increases intraabdominal tension and weakens the abdominal wall. The use of an elastic belt checks the tendency to rapid accumulation of fat.—Leigh F. Watson, *Northwest Medicine*, April, 1924.

FURTHER VIEWS ON BISMUTH AS AN ANTISYPHILITIC DRUG

Bismuth compounds, and particularly the tartarobismuthates, are gaining ground rapidly as therapeutic agents in the treatment of syphilis. Biologically, one is impressed with

the low toxicity of this element when injected instramuscularly, while intravenously it is of high toxicity, much higher than that of organic compounds of arsenic. Mercury, however, is more toxic than bismuth, when comparison is made either of the intravenous or intramuscular route.

As demonstrated on rabbits infected with the spirochete of syphilis, bismuth is considerably more effective than mercury or its organic compounds. This superiority of bismuth from the standpoint of experimental chemotherapy is confirmed by the steadily growing number of clinical successes. It seems that bismuth compounds exert a beneficial influence not only upon the clinical manifestations of the disease but also the Wassermann test. Actually striking results were obtained in the tertiary stage and neurosyphilis. Reports of "reactions" following bismuth are beginning to appear in the medical literature, but these reactions are mild and transient.

In a paper on the subject (*Dermat. Wochenschr.*, 1924, Nos. 7 and 8) Neuber, on the basis of 120 cases treated, concludes that bismuth is an effective spirocheticide and, if slower to act and less certain than the arsphenamines, is as quick or quicker than mercury.

Of secondary syphilis the author treated eighty-three cases with bismuth. The moist papules, condylomata, and macular exanthemata disappeared quickly after two to four injections. After eight to ten injections all lesions became involuted. But the dry, particularly the hyperkeratosic, cases of secondary syphilis, react to bismuth therapy but slightly.

The effect of bismuth on the serum reaction in secondary syphilis is not sufficiently strong. In 70 percent of the cases treated by the author, the reaction remained positive until the end of the course. A large part of these, however, became negative in six to eight weeks after treatment. Evidently the change in the serum reaction after bismuth does not run parallel with the disappearance of clinical manifestations. The biological reactions, on which the change in the Wassermann is based, are slower after bismuth than they are after arsphenamine or mercury. The author, therefore, concludes that bismuth therapy produces fewer immune bodies than arsphenamine and mercury. The rapidity of action on the serum should not, however, be taken as an index to the value of the drug.

The author further reports that bismuth preparations produced very good results in tertiary syphilis. The clinical manifestations began disappearing after the first injection. Of the author's thirteen cases of tertiary lues eight had a positive Wassermann. Of these eight, seven became negative at the end of the course. Thus it seems that the serum reaction in tertiary syphilis is easier to effect than when the disease is in the secondary stage.

Tabes seems to remain uninfluenced by bismuth. The four cases the author treated showed no improvement either in clinical symptoms or serum reaction.

Reactions following bismuth treatment are much milder and much less harmful than those following arsphenamine or mercury. Anemic persons tolerate this drug much better than mercury. Bismuth and arsphenamine may be used for combined treatment. Bismuth preparations are very useful in cases where arsphenamine and mercury have failed. In such instances these compounds generally act promptly.

THE MERITS OF ACIDIFIED MILK FOR INFANTS

Acidified milk as a food for young infants was first used in Holland, where dairy buttermilk was given with signal success. In our own country the idea was accepted somewhat later and quite cordially, till now acidified cow's milk is known in almost every baby hospital and dispensary, and has displayed its usefulness as a food for babies with nutritional disturbances to such an extent that, in some quarters, it is considered next best to breast milk.

It is indicated for practically any young baby with a disturbance of its nutrition for whom it is impossible to get breast milk, excepting of course those showing an idiosyncrasy to cow's milk; that is, for such as fail to gain weight and have attacks of vomiting, distention, and diarrhea, when fed on any sweet cow's milk mixture or any of the numerous prepared baby foods which flood the market. Such an infant will usually do well on acidified milk. Particularly is it of value in the treatment of those unfortunate babies whose nutrition has suffered so severely that they have gone on to that disorder known as "marasmus".

The great difficulty here is to find a food that the baby can digest at all, and, having one, to get it of sufficient "strength", that is, caloric value, to cover the needs of the child. Acidified milk can be fed to these infants in much stronger mixtures than can sweet milk, and much larger amounts of sugar can be added to it, without producing diarrhea or vomiting. This is due, so far as we know,

to the acid in the milk.

There is usually no difficulty in getting babies under five or six months to take acidified milk. Occasionally one will refuse it for the first twelve or twenty-four hours, thereafter taking it greedily. However, it is frequently difficult to get babies older than nine months to accept it, and only rarely after the first year will babies, who have not had it before, be induced to take it.

The principles involved in the use of acidified milk are these; firstly, that the gastric contents must attain a certain degree of acidity before digestion can proceed; secondly, that sweet cow's milk contains a large amount of alkaline or "buffer" substance which must be neutralized by the gastric hydrochloric acid before the optimum acidity is reached and digestion can proceed. It has been shown that three times as much acid is required to acidify a given quantity of cow's milk as it does to acidify an equal amount of breast milk. An undernourished child, or one suffering from some parenteral infection, is unable to produce sufficient gastric acid to produce this necessary acidity, so that digestion does not proceed normally, the child vomits and suffers from diarrhea and loss of weight. The addition to the feeding of sufficient acid to neutralize the buffer substance of the sweet milk will often overcome these difficulties, and permit digestion to proceed in a normal, orderly fashion.

In conclusion let me say that it is not claimed that acidified milk is a panacea for all nutritional disturbances of infancy; but, when judiciously used, it has proved to be another great advance in solving a difficult problem that is ever before the pediatrist.

Cow's milk may be acidified by adding to it tablet cultures of the bulgaricus or acidophilus bacillus, the former having been used for some time for this purpose; or, as stated by Struthers (*Can. Med. Ass'n. Jour., Aug., 1924*), one may use commercial lactic acid (85 percent pure) and proceed thus: The milk is sterilized by boiling for three minutes over a low flame, stirring constantly, and is then allowed to cool. Lactic acid is then added, drop by drop from a dropper or pipette, while the milk is stirred with a spoon. The amount required to produce the proper degree of acidity is four drops of acid per ounce of milk.

URGING DUE ATTENTION TO SMALL WOUNDS

The following, by Dr. W. A. Evans, of Chicago, although written for lay readers, is worth reprinting.

"No presidential family ever has lived simpler and more wholesome lives that has the Coolidge family. The boys studied well in the school season. In summer they worked at manual labor in the open air, doing work well fitted for their strength and age. They lived frugal lives. They were well trained.

"The parents of the nation owe the President and Mrs. Coolidge a debt of gratitude for the example they are setting in the way to bring up boys. If physical strength, good physical development, simple living, proper personal hygiene, counted for everything, there would be no way to explain the death of Calvin, Jr.

"The accounts of his illness given in the newspapers indicate that he rubbed the skin from a place on his foot. Through the raw area one of the ordinary pus cocci, probably staphylococcus, entered. This coccus met with no resistance, either by the local tissues or by his systemic defending forces.

"The coccus quickly found its way into the marrow of the bone, producing a disease known as acute osteomyelitis. The surgeons made an opening into the center of the infected bone as soon as they made a diagnosis. That was the proper surgical procedure. This operation is usually done as an emergency procedure. The general reason for doing so is the same as the general reason for operation at once in a violent attack of acute suppurative appendicitis. Relief quickly follows the operation for acute osteomyelitis, just as it does after acute appendicitis.

"In this case relief did not follow. The infection in the bone was only one feature of the case. The other leg showed signs of infection soon after the trouble appeared in the first. The probability is that within a few hours after the onset of infection the coccus was in the bloodstream, in the heart valves and generally throughout the body.

"The boy was doomed from the start. Neither his white blood cells nor any other cells, nor any other protective force in his body, had any power to fight this coccus. We have no antitoxin or serum or other specific for this coccus.

"This sad case teaches two or three lessons. One is that a simple cut or rubbed place may be infected. The infections around the feet are generally the worst. The infection may run riot in a few hours. The ability to resist infection is not the same as muscular strength, or even as general good health. A man may be in fine health and yet have no power to resist infection. Ability to resist one infection does not mean ability to resist another. There is great need for antitoxins or specfic sera for the various pus cocci."

The foregoing reminds us of the dangers that lurk in small and seemingly trivial wounds and the advisability of taking every precaution against infectivity in such lesions. Unfortunately, the patient does not always consult the physician but when he is consulted the use of a chlorine-carrying or other antiseptic should be recommended.

Among the Books

WILLIAMS: "MINOR MALADIES"

Minor Maladies and Their Treatment. By Leonard Williams, M. D. (Physician to the French Hospital). Fifth Edition. New York: William Wood and Company. 1923. Price $3.25.

Once in a blue moon, there falls into the hands of a medical reviewer a textbook whose literary style is so effective and characteristic that it rivals in interest the average novel. If, in addition to this, it is also pregnant with valuable scientific ideas, the task of the reviewer becomes a very great joy. Such a book is "Minor Maladies and Their Treatment" by Leonard Williams, M. D.

In his preface, the author alludes to the fact that, upon leaving medical college, he found himself excellently equipped for treating such diseases as splenic leukemia, Hodgkin's disease, typhoid and advanced cases of tuberculosis, and things of that sort; but was greatly embarrassed to find that his patients did not come to him suffering with any of these very severe ailments which his training had particularly equipped him to handle but that their complaints were coughs and colds, indigestion, constipation, diarrhea, neuralgia, and things of that description, for the treatment of which he had received little preparation.

It seems to your Reviewer that Doctor Williams' predicament was one which has been shared by all of us, to a greater or lesser extent, and this little book shows evidence of long and careful thought and the extensive study of large numbers of cases of those so-called minor diseases which so frequently prove to be stepping stones to much more serious and dangerous conditions.

The Doctor has set forth the results of these extensive studies and deep meditations in a manner which shows the literary appreciation of a connoisseur and, at the same time, the seriousness of a sympathetic and studious physician. Every chapter in the book merits and encourages close and careful perusal. The chapters on constipation, minor glandular insufficiencies and general health are peculiarly rich and valuable. It is believed that any thoughtful physician who will place this book in his library and read it carefully would not part with it at the end of a month for several times the price at which it sells.

WEIL: "INTERNAL SECRETIONS"

The Internal Secretions. For the use of students and physicians. By Dr. Arthur Weil. Authorized translation of the third German edition by Jacob Gutman, M. D., Phar. D., F. A. C. P. New York: The Macmillan Company. 1924.

More and more, the medical literature is presenting studies of the physiology, pathology and therapy of the glands of internal secretion and more and more, we believe, will this line of work be found a profitable field in medical practice.

The tendency of a busy man frequently is to devote such little time as he may have for study to the purely practical and usable aspects of the subject in hand, feeling that the more basic and less practical aspects will be of little use to him. This position is erroneous and the man who desires to become expert in the application of the principles of endocrinology must first thoroughly familiarize himself with these principles.

Doctor Weil, in his recent textbook with the above title, has selected a method of presentation which seems to be, so far, unique; instead of making each separate endocrine gland a subject of information, he has chosen to elect as subjects all the important physiological functions and to describe a way in which each function is controlled by the endocrine glands operating both separately and coordinately. This method of presentation makes for a scientific appeal and facilitates the study of the basic underlying principles.

The average German textbook is quite likely to be rather heavy and technical in its method of presentation and much value is sometimes lost by translation. Doctor Weil's book errs in the former manner very slightly, as the presentation, while quite highly technical in parts, is clear and interesting. Doctor Gutman seems to have

preserved the scientific and literary integrity of the original text very satisfactorily in his translation.

The book is recommended to all who desire a brief, scientific statement of the fundamental principles underlying endocrine therapy.

DOUGLAS & PRIESTLEY: "HUMAN PHYSIOLOGY"

Human Physiology, A Practical Course. By C. G. Douglas, C. M. G., M. C., D. M., F. R. S. and J. G. Priestley, M. C., D. M. New York: Oxford University Press. 1924. Price $3.50.

This book is presented to the medical public in the belief that much interest attaches to performing physiological experiments upon the living human being, and should be a useful work for anyone who cares to engage in this line of experiment, as it contains detailed instruction not only for performing the experiments but for arranging the apparatus for their performance. It covers the general subjects of respiration, respiratory exchange, the blood and the blood gases, the circulation, the kidneys and the alimentary canal.

HADEN: "LABORATORY METHODS"

Clinical Laboratory Methods. By Russel Landram Haden, M. A., M. D. Illustrated. St. Louis: C. V. Mosby Company. 1923. Price $3.75.

Laboratory manuals are legion. Most of them are good. Occasionally, one finds new ideas in some of the newer manuals. This volume covers the ordinary laboratory procedures in a simple and practical manner, giving but one method for each form of analysis, so that the reader or student does not become confused or involved in discussions of the relative merits of laboratory procedures.

WEBER: "ORGANIZING A HOSPITAL"

First Steps in Organizing a Hospital. An Exposition of Ideals and Principles Incident to the Inception and Organization of a Hospital. By Joseph J. Weber, M. A. New York: The Macmillan Company. 1924.

The aim of this book is to discuss the practical phases of the task of organizing a new hospital. The author has in mind not so much the organization of large metropolitan hospitals as of the typical community hospitals.

Among the problems discussed are the survey of a community before undertaking hospital construction in order to determine the demand for it, the steps that must be taken in getting a hospital organization under way, methods of financing construction and the duties of the Board of Trustees.

There are also extensive appendices giving forms for organization and incorporation, sample by laws, forms of contracts for architects and contractors, etc.

The book is well gotten up and should be of vital interest to all who are interested in hospital construction.

CHAPMAN: "HOSPITAL ORGANIZATION"

Hospital Organization and Operation. By Frank E. Chapman. New York: The Macmillan Company. 1924.

This volume deals primarily with the internal activities of hospital operation. The opening chapter considers the function of the hospital, the essential principles of its organization, and the selection of the proper personnel. In the rest of the book, the mere mechanical details of administration and management of the various departments are discussed in great detail. A large number of sample forms and blanks are shown.

BRAM: "GOITER"

Goiter: Nonsurgical Types and Treatment. By Dr. Israel Bram, Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia. New York: The Macmillan Co. 1924.

It is seldom that the present Reviewer, a professional surgeon, can be enthused sufficiently to write reviews of new books with an abundance of enthusiasm. Bram's book, however, even though it does not favor surgery in many cases of goiter which heretofore have been looked upon as surgical in character, in every respect, is so earnest and so humane an effort that I would urge every reader not to fail to obtain a copy of the book and not to read it like a dutiful task but begin with the expectation of reading a medical epic and he will not be disappointed, if he does not happen to expect something that no human author can give.

After all, the question of when to operate and when not to operate for goiter comes to every practitioner, no matter whether he practices in a city or hamlet, in a section where goiter is prevalent or in regions where goiter is not endemic. Bram will help you. In

twenty-eight chapters, he presents not only the anatomy and physiology of the thyroid gland but delves into *medias res* by a study of the classification of goiter and from then on diagnosis of the diverse forms, the symptomatology, the methods of nonsurgical treatment follow in orderly and logical procession, each chapter being written by a man who is not only an earnest enthusiast but a conscientious scholar who weighs the evidence with the open mind of an unprejudiced judge.

While here and there surgeons may not be fully in accord with him (and I am no exception), I am nevertheless ready to admit that the book is an authoritative guide. What is particularly interesting and praiseworthy is the extreme modesty of the author, who not only submerges his own personality but who tells his experiences and ideas in so simple a manner that any one at all familiar with English can follow his lucid reasonings without effort. That, in my opinion, is a test of scholarship.

The market is flooded with books and many a reviewer who desires to help a brother author says mighty fine things about most of them, but I say this: if you want to know all about goiter, except operative therapy, get Bram's book.

G. M. B.

GRAVES: "GYNECOLOGY"

Gynecology. By William P. Graves, M. D. Professor of Gynecology at Harvard Medical School. Third Edition, Thoroughly Revised. Illustrated. Philadelphia and London: W. B. Saunders Co. 1923. Price $9.00.

This book on the diseases of women is so popular with teachers, students and general practitioners that nothing we can say will add to its usefulness.

However, the book appears now in the third revised edition and not only covers the entire subject of gynecology, medical as well as surgical. from every angle, but brings the subject up to the very last minute. Gynecologic surgeons will be particularly delighted with this book because Professor Graves not only describes every operation, no matter by whom proposed, but enhances the text by illustrations which constitute an operative atlas.

One more point of merit must be mentioned with praise. The author has taken useful views, especially with reference to the relation of general or systemic disease to gynecology, no matter from what source, and thus has given as a proof that the World War has not developed a chauvinistic spirit which ignores the scientific labors of our erstwhile military and political enemies.

It is a splendidly gotten up book in one volume that will satisfy any one, be he specialist or not, as a reliable source of reference.

CLARKE: "PROTISTS AND DISEASE"

Protists and Disease. By J. Jackson Clarke, M. B., Lond., F. R. C. S. New York: William Wood & Company. 1923. Price $4.50.

This little volume, which is excellently gotten up and well illustrated, is an extremely technical manual of the lower forms of vegetable life, including the algae and fungi and various others, some of which are supposed to be the causal agents in smallpox, cancer and other infectious diseases whose causative organism has not been definitely isolated. To the student of biology or of botany of the lower flora, the book should be interesting and valuable.

BICKHAM: "OPERATIVE SURGERY"

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By Warren Stone Bickham, M. D., F. A. C. S. In six volumes. Volume III. Philadelphia and London, W. B. Saunders Co. $10 per volume.

The third volume of this encyclopedic work on Operative Surgery contains a thousand and one pages and is devoted to the operations on the eyes, ears, nose, sinuses of the head, cheeks, lips, teeth, palates, tongue, pharynx, salivary glands, larynx, trachea, esophagus, thyroid gland, thymus gland, neck, breast, thorax, pleura and lungs, to mention only the most frequently-used operations. In addition, such rarer operations as, for example, on the remains of the bronchial clefts, mediastinum and others, come in for special chapters, of which there are fifty-five in this volume.

The organization of the text is about the same as in the preceding two volumes, as is the physical make-up. The technics of the recognized operations are again well presented and the illustrations, enhancing the text, are, in most instances, splendidly produced.

The chapter on operations for goiter is especially good. In the chapter devoted to operations upon the breast, we find Ashford's mammilliplasty for inverted nipple well described, while Kehrer's and Williams' technics are discussed in three or four lines. We miss

in this chapter any allusion to the operative correction of pendulous mammæ. The operations for the extirpation of the mammæ for malignant disease have been handled in truly masterly fashion.

The chapter on lung surgery brings this difficult phase of surgery up-to-date, and the physician who has not kept abreast will be amazed at the number of methods which have been tried in an attempt to cure tuberculosis. This chapter alone is a monograph in itself.

Again we can only express our amazement at the almost superhuman effort on the part of the author and respectfully submit both to him and his publishers our keenly-felt thanks for the collection of all modern surgical methods in one great work—a work which will long remain as one of the guiding landmarks of surgical progress of the world.

CLARKSON: "VENEREAL CLINIC"

The Venereal Clinic. The Diagnosis, Treatment and Prevention of Syphilis and Gonorrhea. A Handbook of Venereal Disease in Relation to the Individual and the Community. By several writers. Edited by Ernest R. T. Clarkson, with an introduction by Sir Squire Sprigge, M. D. New York, William Wood & Co. 1922. Price, $6.50.

This is an excellently prepared little handbook on the character, diagnosis and treatment of syphilis and gonorrhea. The book will be of interest to general practitioners as it deals with the venereal problem from many angles.

The illustrations, especially the colored plates, showing the urethroscopic pictures in chronic gonorrhea are excellently produced and will prove of great value to practitioners who have had no opportunity for special instruction in this work of urethral examination.

The text is lucid and to the point, the book representing a veritable *multum in parvo*.

Those who are interested in the venereal problem as sociologists or hospital administrators or perhaps as public health officers will find one part of the book devoted to sociology and administration of special value, though this section must be looked upon as an entity in itself.

The author takes a rather pessimistic view of the therapeutic successes of tertiary syphilis as a disease, but admits that the lesions disappear almost like magic. When the book was written, research with arsenical compounds had not yet attained a degree of perfection which holds out hope to the sufferer from central lues. How much hope there is for a general paretic even with the newer remedies, is still problematic, and it is hoped that when a new edition of the book appears progress will have reached a stage when perhaps the problem of tertiary syphilis will appear less frightful.

Meanwhile, the book is as up-to-date as any we have seen and merits a wide-reading public.

RAPER: "RADIODONTIA"

Radiodontia (Dental Radiography and Diagnosis). Questions and Answers. By Howard Riley Raper, D. D. S. Illustrated. Brooklyn: Dental Items of Interest Publishing Co. 1923.

A practical manual of dental radiography and diagnosis, arranged on the method of questions and answers. Well illustrated with diagrams and photographs. Should be a valuable aid to any dentist doing radiographic work.

Current New Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering our readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

J-186 The Therapeutic Review. 32-page booklet. Battle & Co.

J-187 Luer Syringe for Insulin. 4-page folder. Becton, Dickinson Co.

J-188 Alpha-Lobelin in Respiratory Failure. 4-page folder. Ernest Bischoff Co., Inc.

J-189 The Taylor Massotherapor. Its Development, Manufacture and Field. 16-page booklet. Cairnes & Co.

J-190 Your Physician's Counsel in Tuberculosis. 8-page booklet. California Endocrine Foundation Laboratories.

J-191 Digifoline. A New Preparation of Digitalis by C. Hartung, M. D., Ph. D. 8-page booklet. Ciba Company.

J,192 Diabetes Mellitus. 5-page folder. Drug Products Co.

J-193 Filter Paper. 4-page folder. Eimer & Amend.

J-194 Ninth Edition of Electro Surgical Instrument Co. catalogue. 80 pages.

J-195 Portable Diathermy and Electro-Coagulation Apparatus. 12-page booklet. H. G. Fischer & Co.

J-196 Radiographic Unit. 12-page booklet. H. G. Fischer & Co.

J-197 Wave Generator. 24-page booklet. H. G. Fischer & Co.

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J-200 New and Strange Uses for Parathyroid Therapy. 15-page booklet. Harrower Laboratory.

J-201 Menstrual Irregularities by Henry R. Harrower. 14-page booklet. Harrower Laboratory.

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J-203 Malted Milk. A complete food adequate in vitamine content. 12-page booklet. Horlick's Malted Milk Co.

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J-49 "Vichy." Natural Mineral Waters. Henry E. Gourd.

J-31 Romance of Digitalis—The Story of Its Discovery. 12-page booklet. Hoffman-LaRoche Chemical Works.

J-169 Six Rules for Making Better Coffee. 4-page folder. Joint Coffee Trade Publicity Committee.

J-64 Home Economics Dept. Eat Wisely and Keep Well. Kellogg Co.